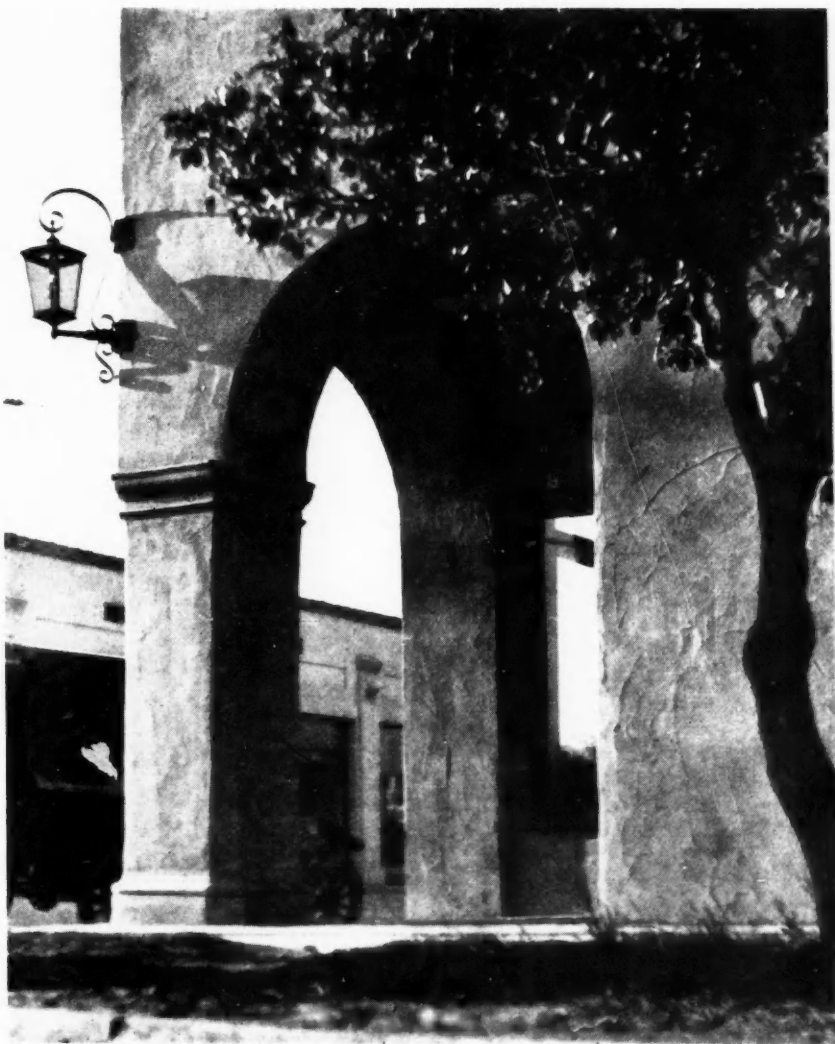


Architectural
Digest

FEATURING • A GROUP OF SANTA BARBARA HOMES

NOV 19 1925
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VOLUME XXVIII • NOVEMBER • 1925 • NUMBER • FIVE

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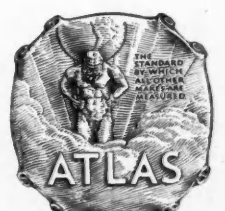
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HARRIS ALLEN, A. I. A., EDITOR

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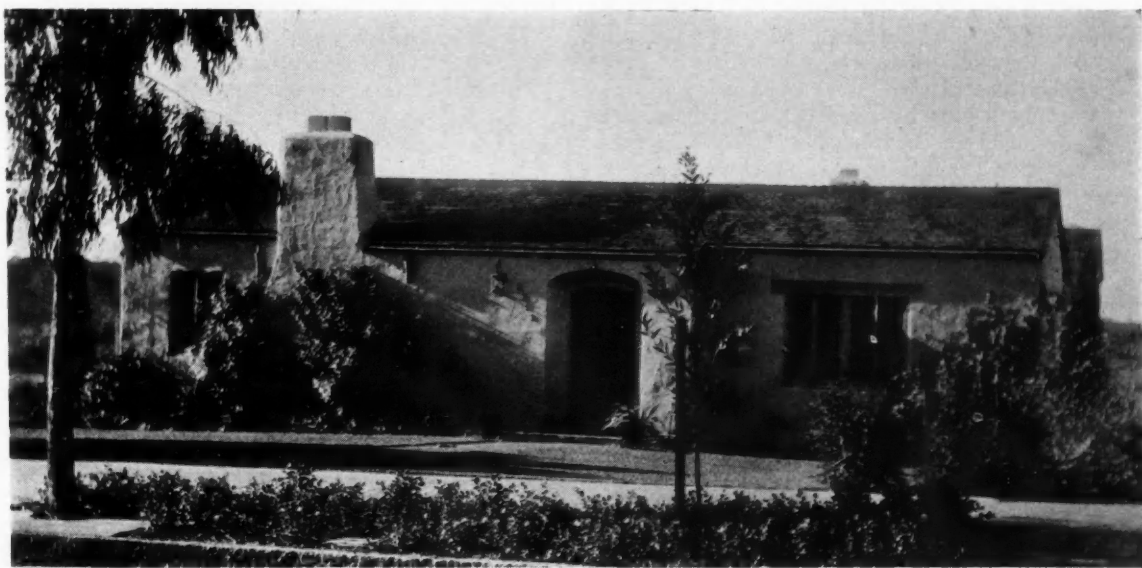


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RESIDENCE OF MRS. ELISE HODGES, SANTA BARBARA, CALIFORNIA

THE JEWEL OF ARCHITECTURAL CONSISTENCY

[BY HARRIS ALLEN, A. I. A.]

WITH but a single exception, the illustrations of Soule, Murphy and Hastings' work here shown are conceived in the spirit of "Mediterranean architecture" which is so appropriate for Santa Barbara, and which the public-spirited leaders of that community are endeavoring, with considerable success, to have generally adopted in the work of reconstruction now well started.

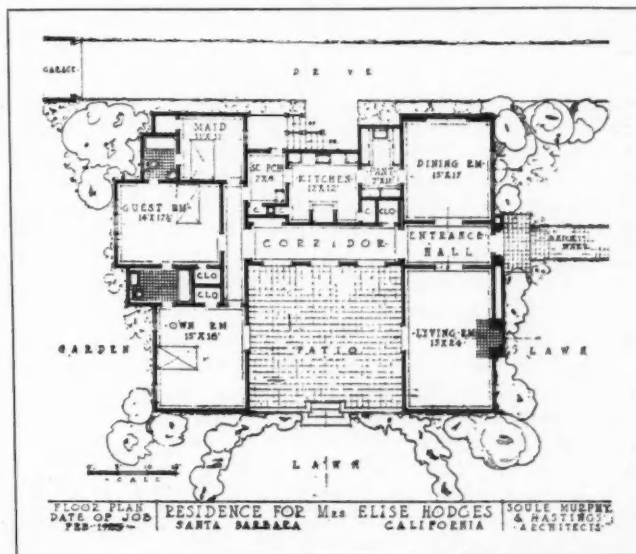
Even in that exception, the well-known residence of Mr. F. L. Baxter (so charming that it received a gold medal award from the Southern California Chapter of the Institute), we find the interior treatment distinctly Spanish in type, and by no means inharmonious with its envelope, French though it be. The simplicity, vigor and picturesqueness of its farmhouse prototype are delightfully reproduced; it must have been fun to build it, and it must be very pleasant to live in.

So much for a digression from type which is surely pardonable from any standpoint. The rest of these buildings vary only in degree. Some are irregular and informal, some carefully balanced, dignified; through all the compositions runs a spirit of robustness, a sturdy substantiality that

marks the work of this firm with a distinct character.

Take their commercial buildings. It is not always easy to convince an owner that a structure intended for business should have any apparent structural stability. To them, the ideal shop is a roof floating over acres of plate glass. Mr. Soule

[Concluded on page 43]



SANTA BARBARA CONSTRUCTION LESSONS

III DESIGNING AGAINST EARTHQUAKES

[BY DR. BAILEY WILLIS, STANFORD UNIVERSITY]
President Seismological Society of America



THE Santa Barbara earthquake has called attention to various defects of architectural design as well as to those of structural weakness. The architect may and in certain cases did predetermine the failure of the building in the accepted sketch of the ground plan. (Arlington Hotel.) In other locations he did not recognize the dangerous conditions inherent in an unavoidable plan and did not provide strength to oppose them. (San Marcus building.) By contrast, in certain examples we see that the simplicity of the ground plan and the conditions of construction imposed by the purpose of the structure led directly to a safe type (U.S. Postoffice).

To many it may be a new thought that there exists the possibility of foreseeing how an earthquake will act on a structure. Our efforts to do so will no doubt be advanced by future studies. But even so we can now arrive at suggestions that are not without value. Let us see how far we can get with our present understanding of the origin and nature of earthquake vibrations.

Let ABCD represent a portion of a fault plane underground and let O be a point on that plane from which an earthquake impulse starts in the direction OP. Let EFGH represent the foundation of a structure so situated that the impulse strikes it at the point P. Then the effect on the structure will vary according to the angle at which the elastic impulse of the shock impinges on it. At right angles to the wall the full force of the blow will be experienced. At an oblique angle the effect will be partial, being limited to that of components of the initial force, tending to produce shear or torsion.

A single ray of vibrations is in an actual earthquake only one of an indefinite number, starting from innumerable points on the area of the fault plane, many square miles in extent. Mathematically seismologists distinguish a definite focal center, but we are here dealing with the vibrations that radiate from the fault which acts as a sounding board. Moreover from every point of such a plane the rays diverge in every direction.

The effect is to set the solid rock vibrating according to a very complex system of waves, crossing one another in all directions, canceling one another where crest and

[Continued on page 47]

EARTHQUAKE-RESISTING FOUNDATIONS

[BY G. SIACCI, CIVIL ENGINEER, AND EDWARD GLASS, ARCHITECT]

EDITOR'S NOTE: The authors of the following article, Messrs. G. Siacci, an Australian Engineer, graduated from the University of Rome, and Edward Glass, Architect, from the University of Pennsylvania, have both had extensive experience with buildings in earthquake countries. The great bulk of work carried out by Mr. Siacci, as Consulting Engineer in Egypt, Australia and New Zealand, made him known as an expert in foundations in difficult soil.

Mr. Glass, in association with Mr. Thomas Smith, carried forward as Architects considerable earthquake resisting construction in Guatemala.



THE effect produced by an earthquake is in direct relation with the acceleration of the horizontal movement, which is a movement of short duration, of masses of earth going and coming very rapidly in one main direction. Such directions vary from one moment to another and from place to place according to the geological structure of the soil. In some cases the direction is not quite horizontal, but emerges by a slight angle with the horizon. In such cases there is a vertical component, which, however, is of no importance when compared with the main action of the horizontal movement.

There are sometimes earth upheavals occurring along lines of weak resistance but it is a well-known fact that the undulatory character of the waves is primarily horizontal. An idea of such waves may be had by imagining a basin full of water when shaken. The crests of the water waves may be compared to the upheavals of the earth.

It is generally well-known how the earthquake phenomenon manifests itself. It begins with tremors resulting from distant waves traveling very fast from great depths. The velocity of the vibrations of these waves increases as they come up to the surface.

It is evident that the shocks on a building situated in the seismic area are first received by the foundation, thence transmitted to the building. It follows that the

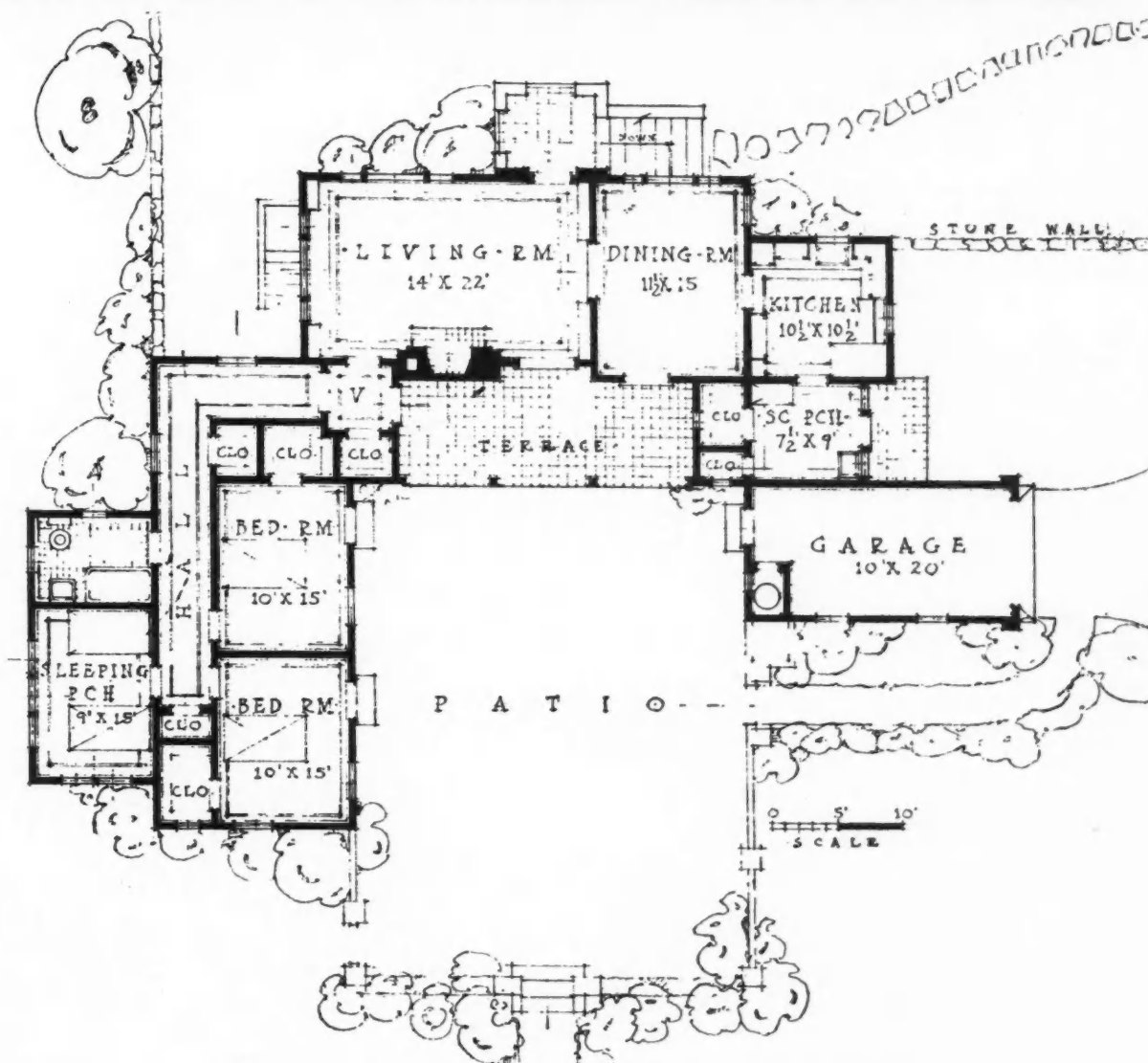
chances of safety for a building depends, in the first instance, on the resting capacity of the foundation to stand the first and subsequent shocks. It is clear then that foundations should not only be designed to distribute the load upon the ground. They must have also resisting capacities to lateral shocks. Better than resisting, they should be able to *absorb* shocks. In fact, if shocks could be absorbed like in automobiles, buildings would be totally immune from earthquake disturbances.

The kind of foundation we have imagined that would, in our opinion, answer the above requirements is a *raft of reinforced concrete*. Its structure would be like that of a multiple and geometrical honeycomb with upright truncated cylindrical cells from 3 to 6 feet in diameter and from 3 to 9 feet high, measured outside the two horizontal slabs. These slabs are to be reinforced with wire nets placed in two directions. Their thickness would vary according to the upward and downward pressures. The shell of each cell or ribs of the structure would be 8 inches thick at the base and 4 inches at the top. Their reinforcement would be both vertical and spiral.

The cavity would be filled with sand graded in such a manner as to reduce the voids in the sand to a practically irreducible minimum.

We claim that this type of structure will realize not only great economical advantages as a footing for build-

[Concluded on page 46]



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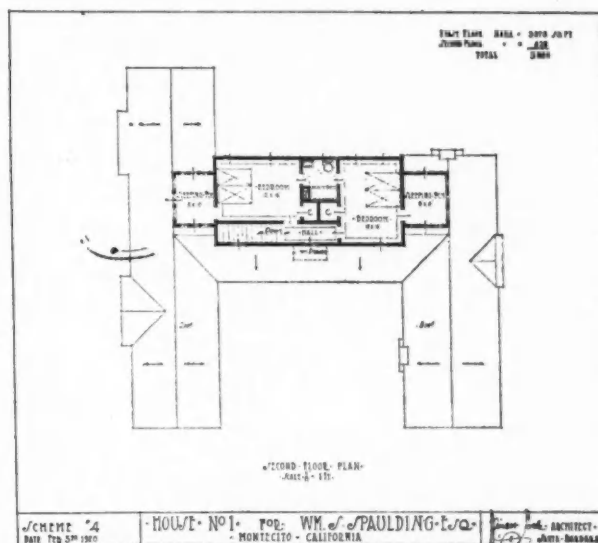
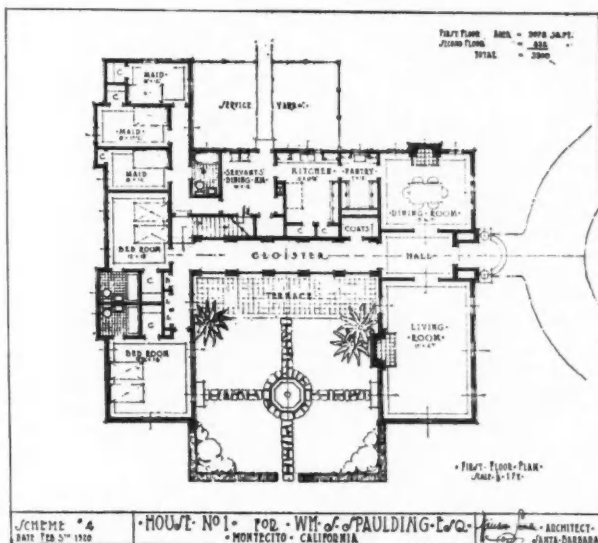
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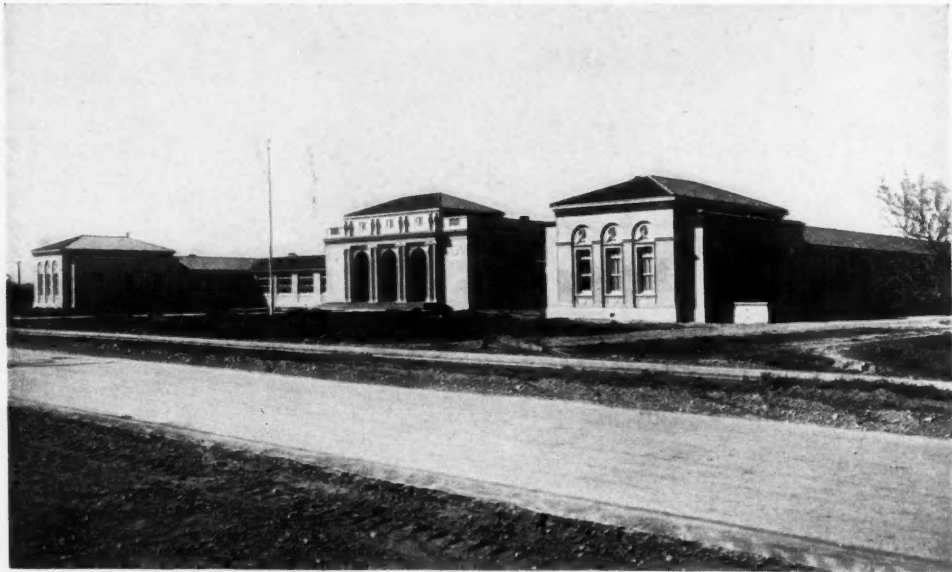
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W. H. WEEKS, ARCHITECT

Schools of Beauty

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Beauty in temples of learning, as an important aesthetic influence, is as old as the first academic grove of the ancient Greeks.

It has never been more valued, nor more universally applied, than today, here in our West.

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* * *

*The school shown is roofed with Latin Tile
The architectural detail is in Terra Cotta*

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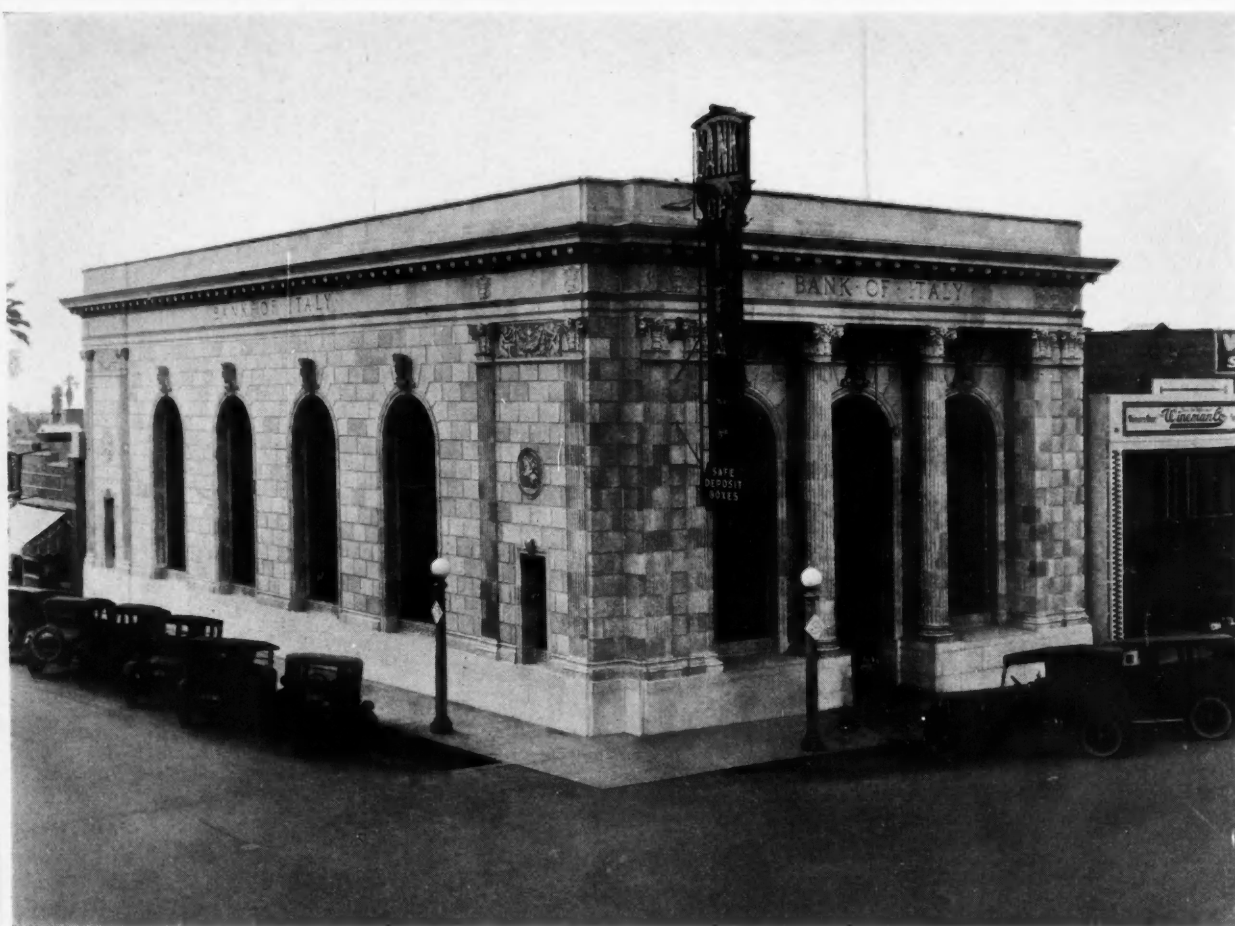
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Red Granada Roofing Tile (Random Laid)



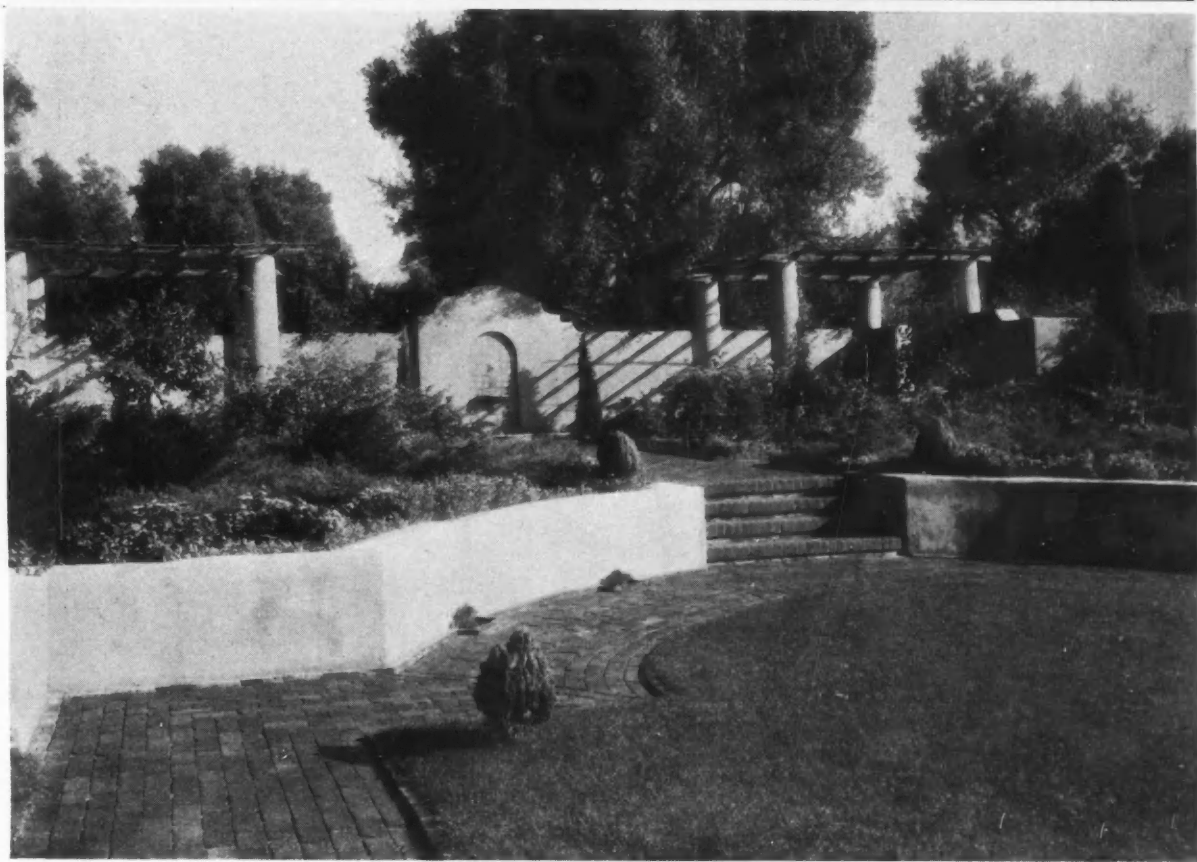
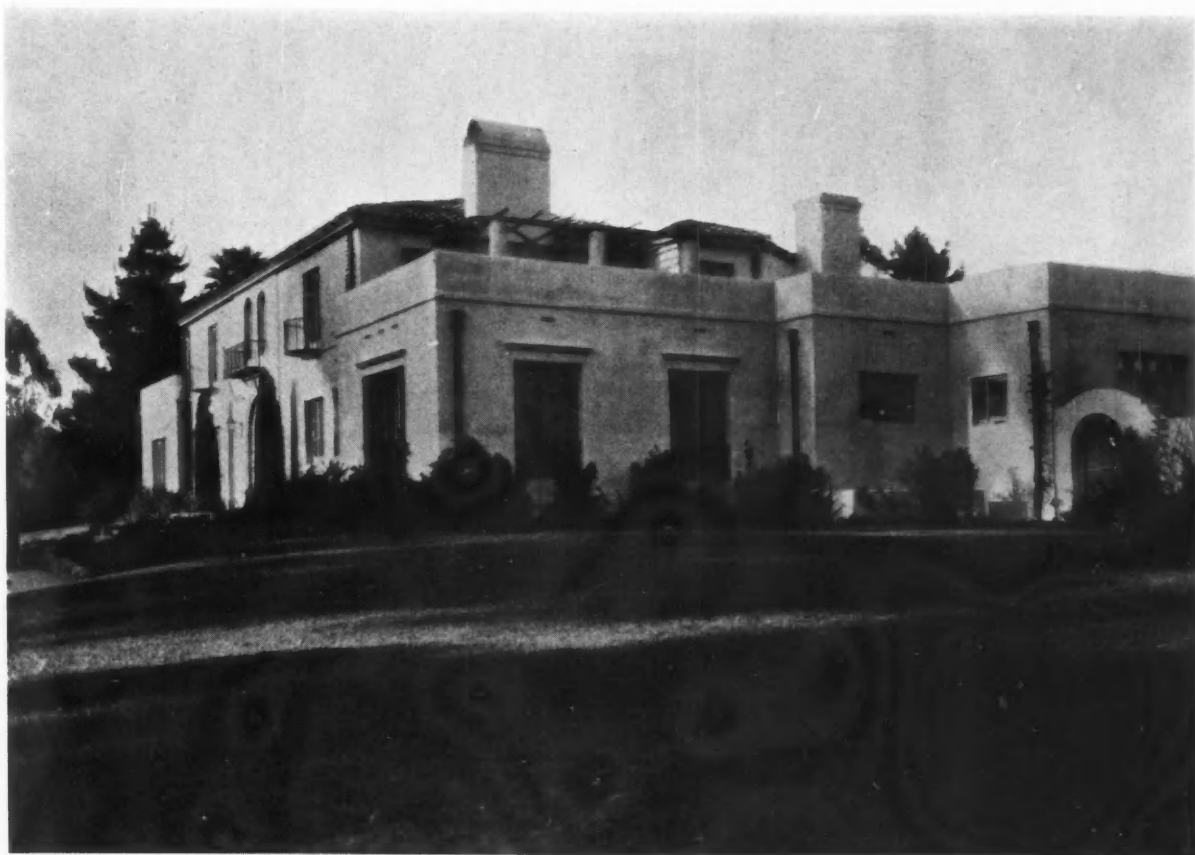
THE ROOF of the new Science building, University of Southern California, showing the Red Granada Roofing Tile, random laid with 'laced' valleys.

*Arthur Harris, Roofing Contractor
John Parkinson & Donald Parkinson
Architects*

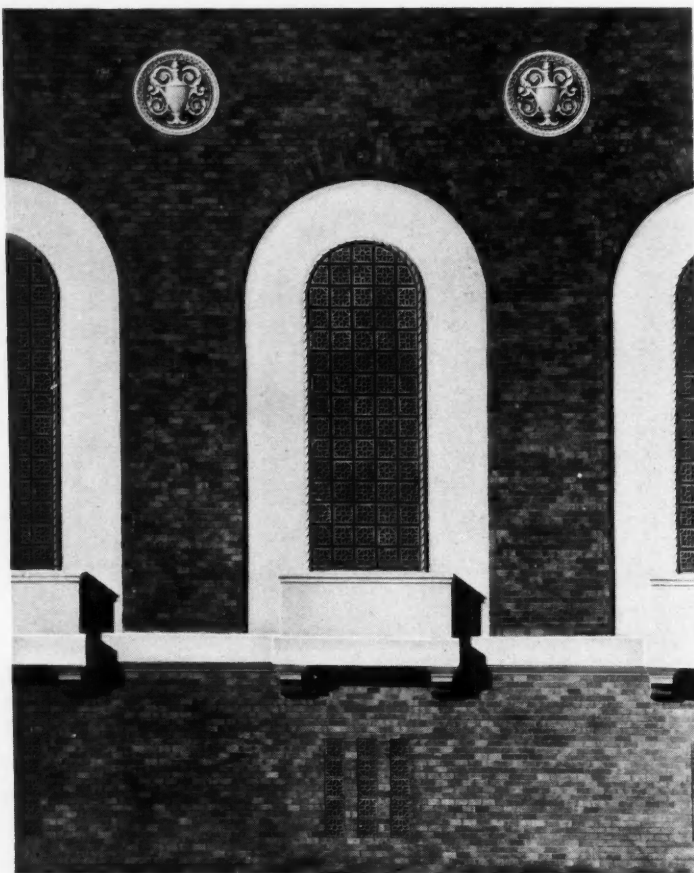
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*Detail Brick Wall,
Senator Theatre,
Sacramento
Leonard F. Starks,
Architect
Mathews Construction Co.,
Contractors*

This Brick ruffled on broad side

Architect Leonard Starks economized in the face brick veneer laid over the concrete of the Senator Theatre, Sacramento, by having the brick laid up with the broad side exposed.

A special Dickey buff Face Brick, with the broad side ruffled, was furnished for the

purpose. The grille was also made by Livermore Fire Brick Works, Inc.

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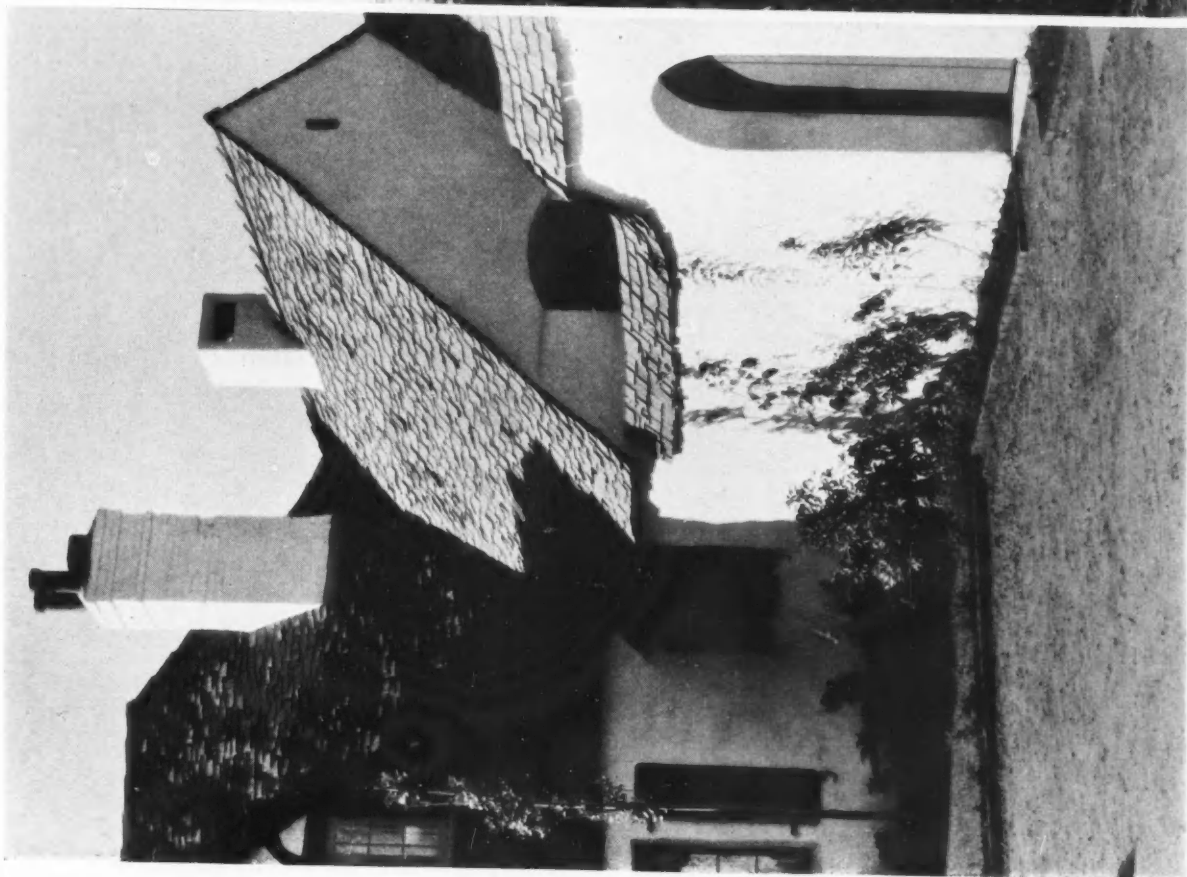
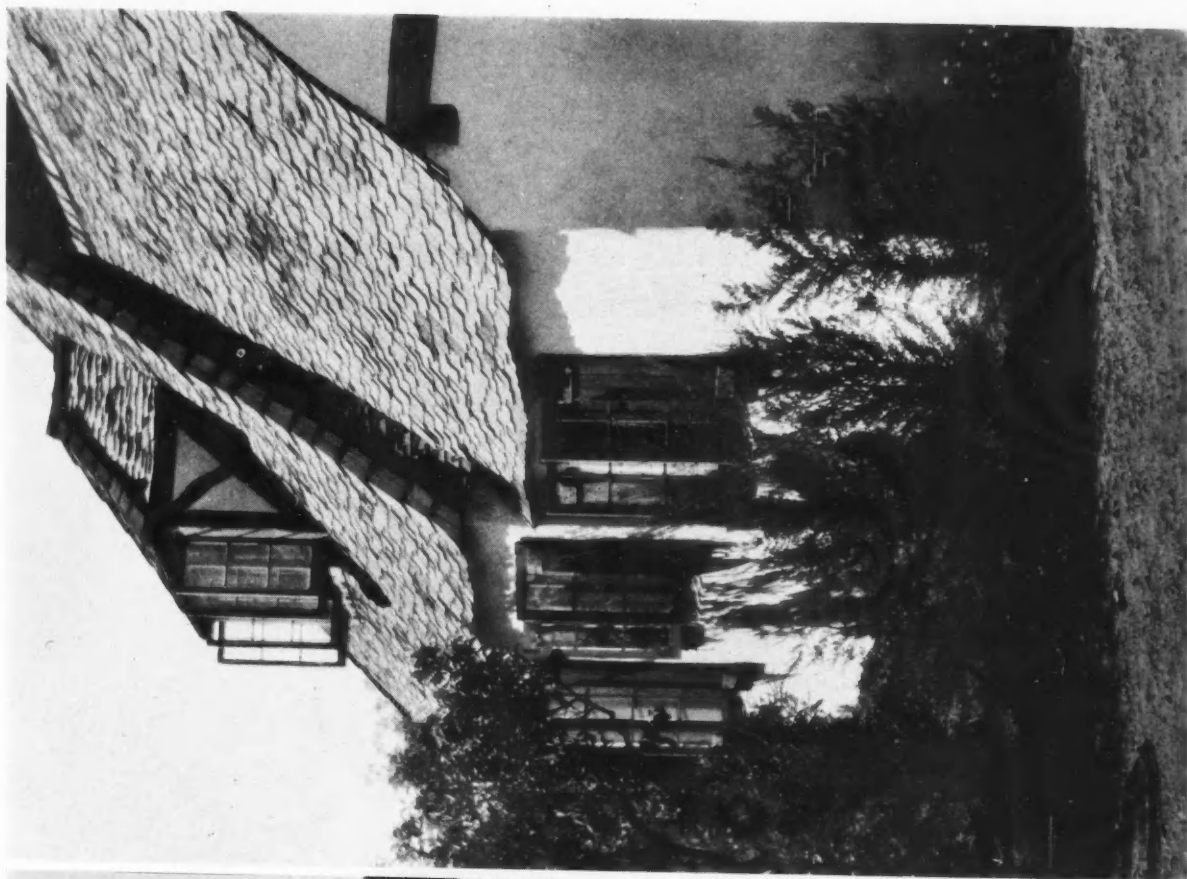
Partition Tile, Furring Tile, Paving Brick, Sewer Brick,
Step and Walk Brick, Drain Tile, Flue Lining

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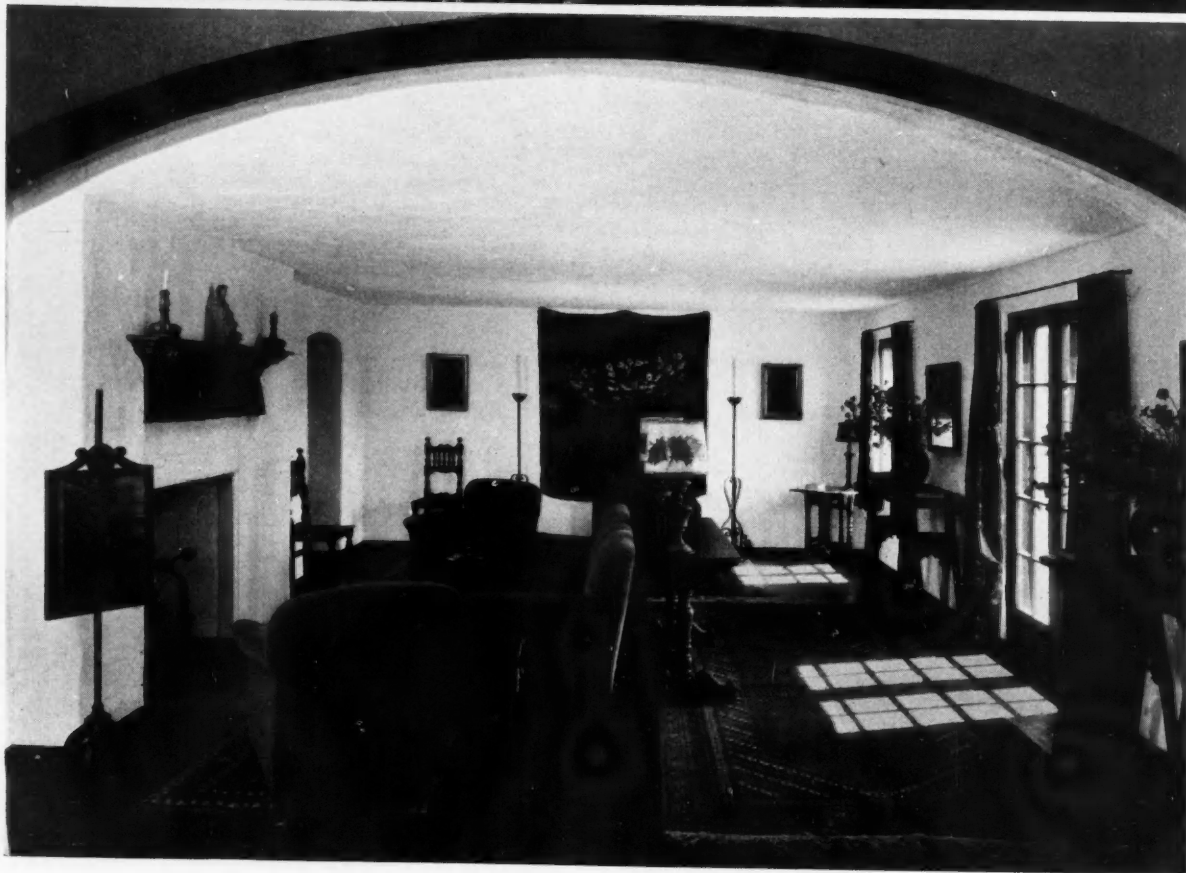
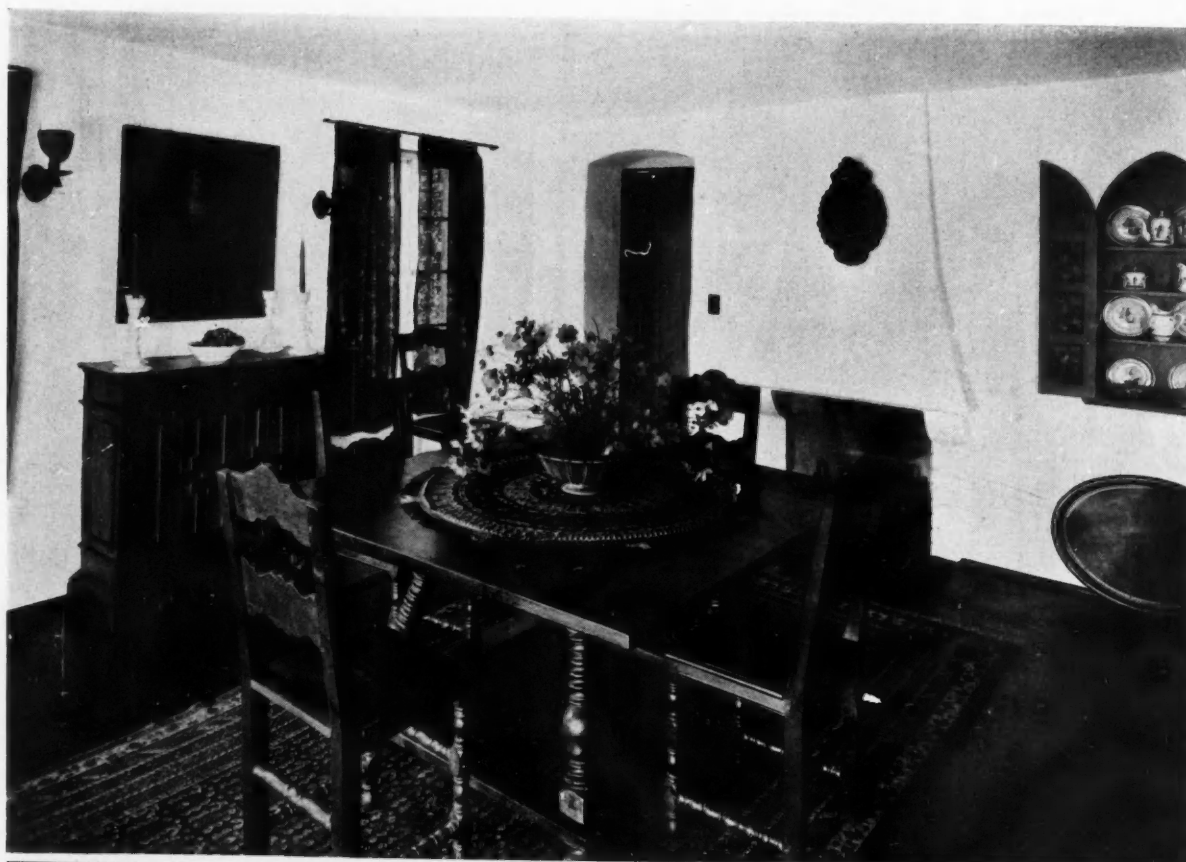
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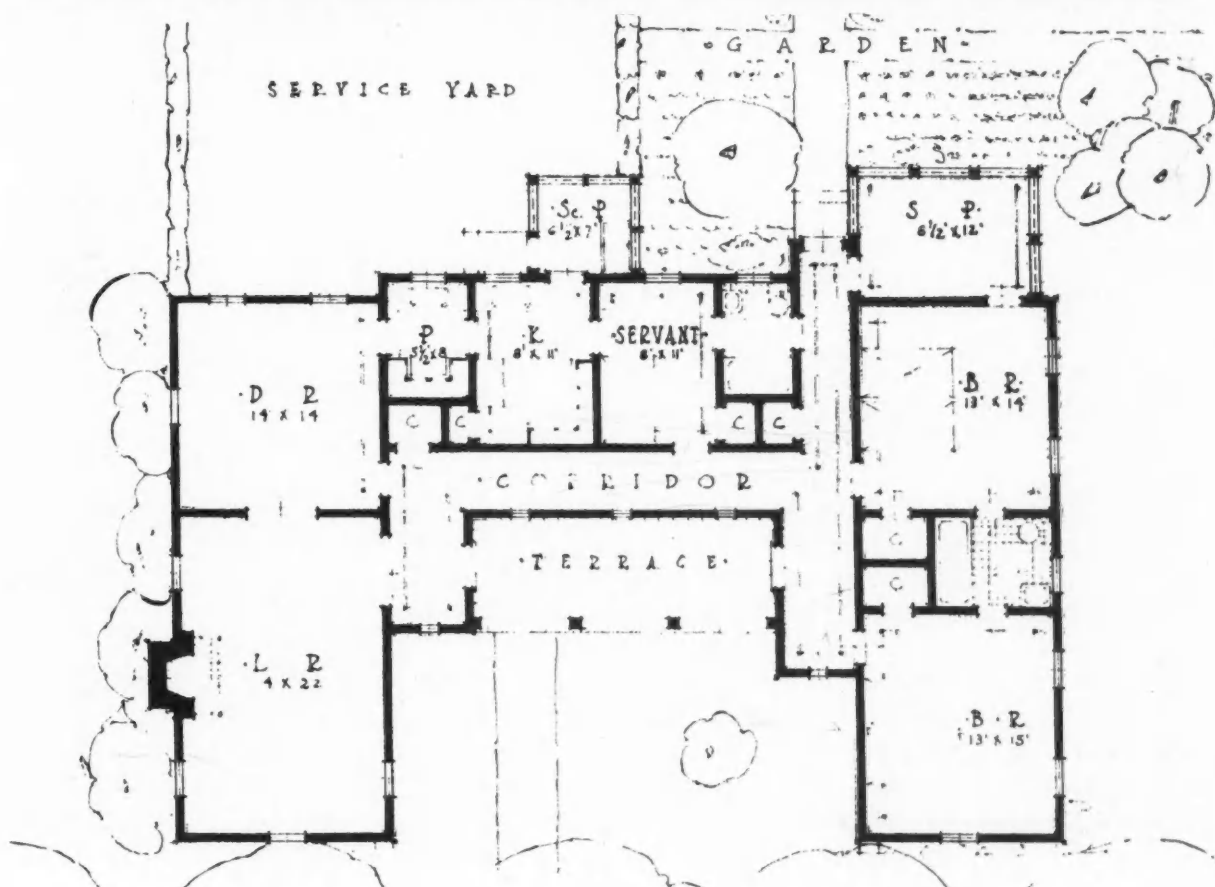
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RESIDENCE OF MR. KENDALL ROGERS, SANTA BARBARA, CALIFORNIA
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*The Furniture Mart, Chicago, Illinois
Henry Raeder, Architect, N. Max Dunning and George C. Nimmons & Co., Associates*

THE Furniture Mart is one of the outstanding buildings that are extending the commercial section of Chicago "north of the River."

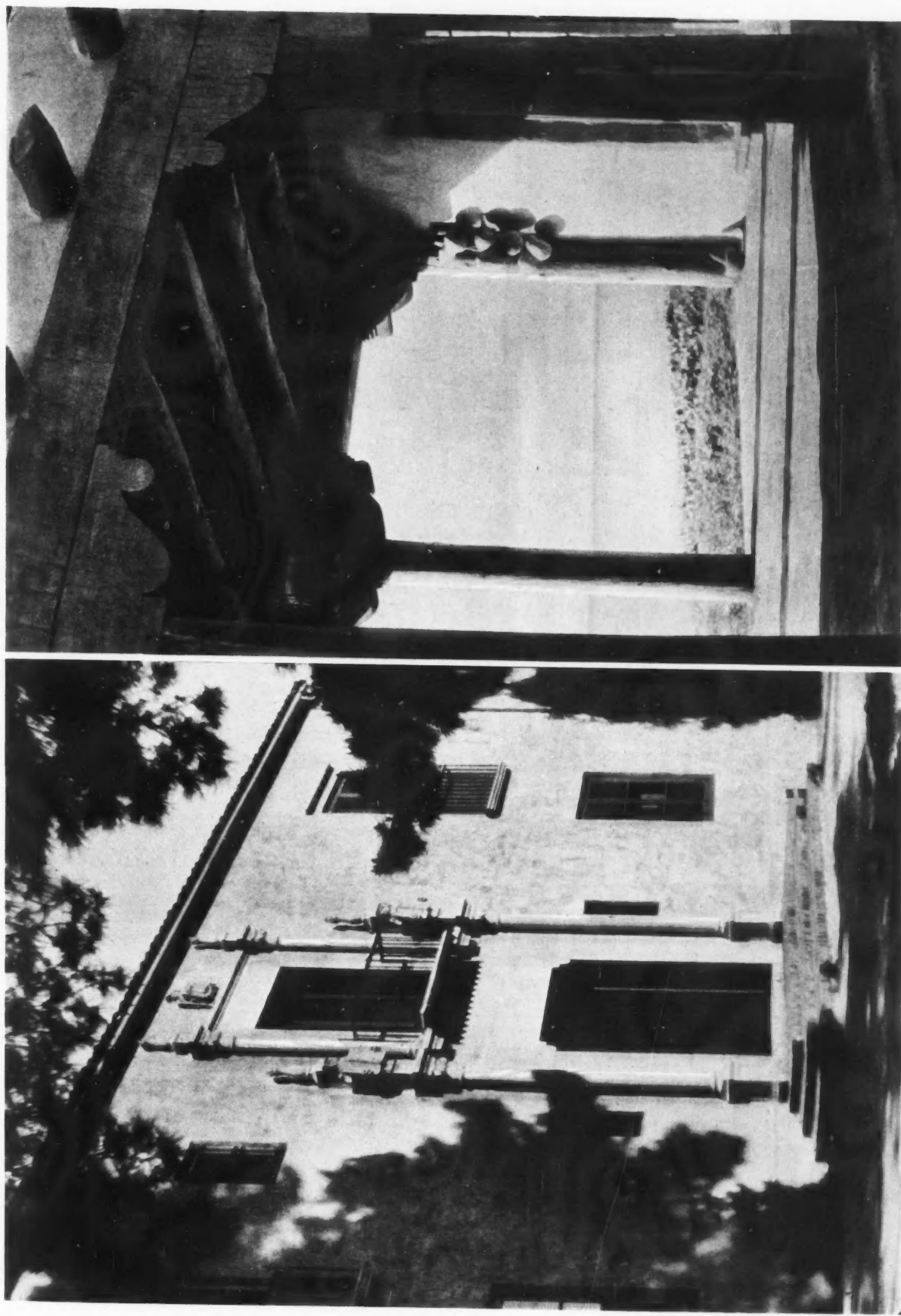
The exterior walls are of a warm gray, textured face brick, laid in a flush cut natural mortar, with the horizontal joints one-half inch wide and the vertical joints slightly less. The trim and ornamental features are of a slightly lighter gray Mat Glazed Terra Cotta with quite a strong mottled and texture treatment, thus producing a most pleasing and effective color harmony.

You will find many splendid examples of the modern use of face brick in "Architectural Detail in Brickwork," a portfolio of many halftone plates, showing various treatments of the brick wall surface, ready for filing. It will be sent postpaid to any architect making request on his office stationery.

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LEFT—UNIVERSITY CLUB; RIGHT—BEACH LODGE FOR MR. BERNHARD HOFFMAN, SANTA BARBARA, CALIFORNIA. SOULE, MURPHY AND HASTINGS, ARCHITECTS

Fires

that could have been prevented

EVERY time the clock ticks 60 seconds \$1000 is lost in this country by preventable fires—enough to pay the French war debt in eight years—more than enough to pay the annual salaries of all the school teachers in America.

And the frightful thing about these fire losses is that they are absolutely preventable. Buildings burn only when they are built of combustible materials. We like to blame high winds, careless smokers and rats gnawing matches under floors—but we continue to pile up fuel for the flames when we rebuild.

We are the only civilized country in the world that has still to learn that fireproof construction is the only economical safe construction. Brick has driven the Demon Fire out of Europe. Gradually brick is teaching California that the only way to avoid fires is to build against them. Brick is burned in the making—it never can burn again.

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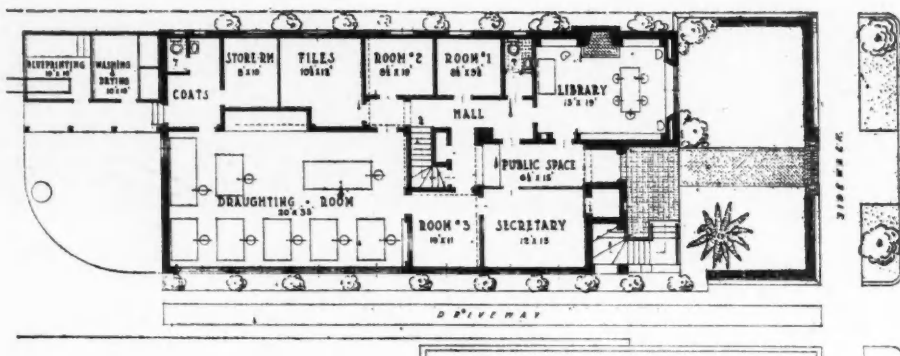
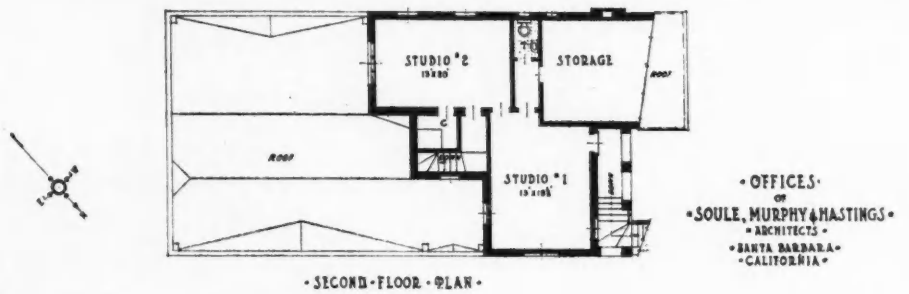
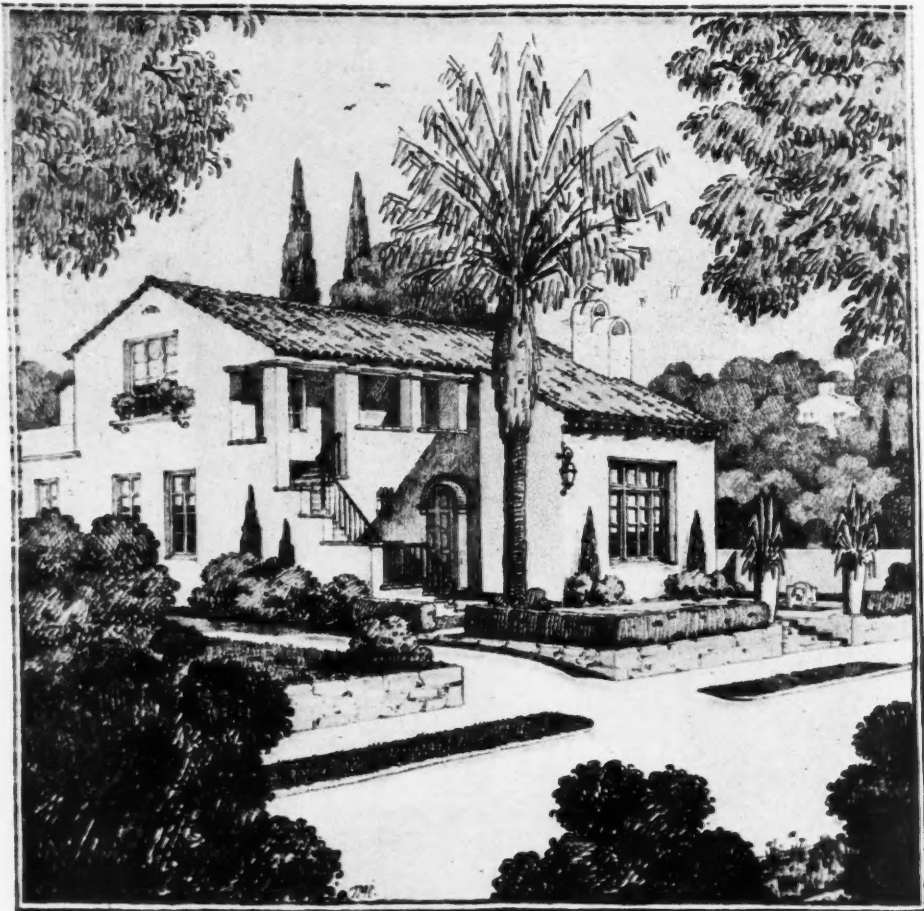
Los Angeles San Francisco

BRICK

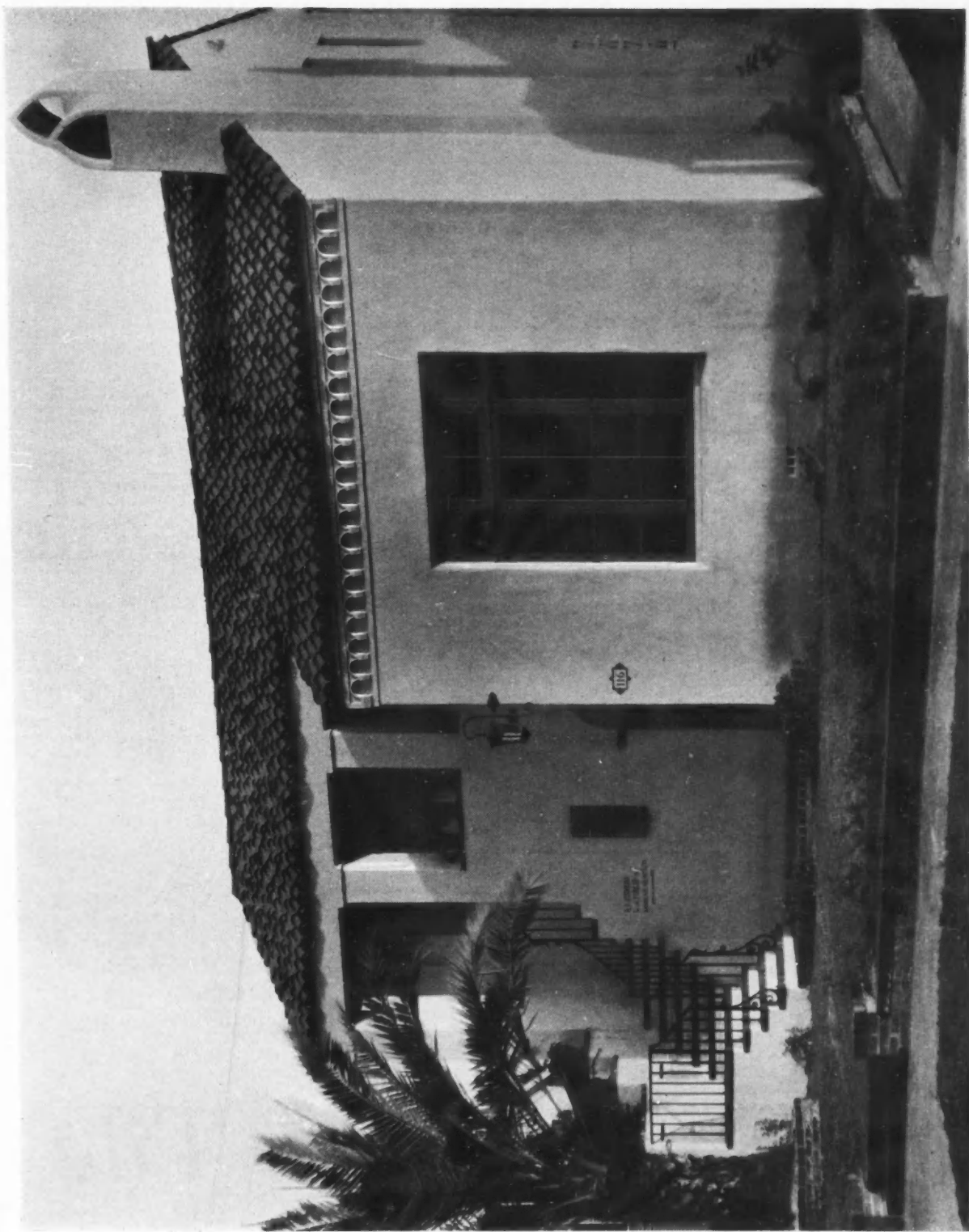
FOR FIREPROOF BUILDING



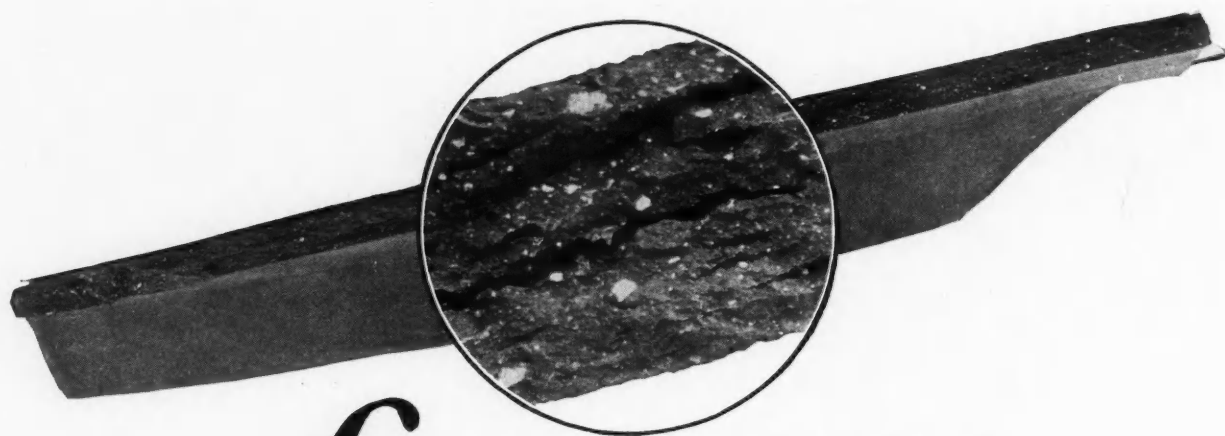
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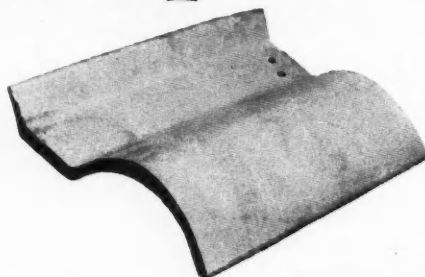
Laminations -the sign of inferior tile

AT a superficial glance all roofing tile may look pretty much alike. But there are vital differences that do not always show on the surface. It is necessary to break a tile and see how it is made in order to judge its true worth as a roofing material.

Laminations are caused by defective manufacture in which the center of the plastic clay column moves faster than the sides. This gives a finished product built up of layers with pockets and air spaces between, giving a ware inherently weak and porous.

We guarantee each and every tile of our manufacture to be free from laminations and blisters.

Simons Spanish Tile

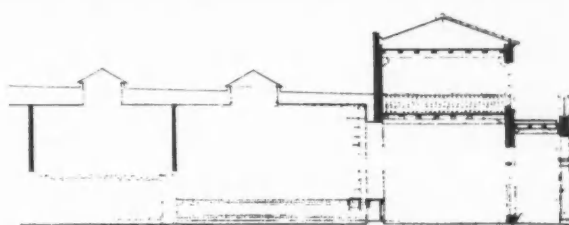


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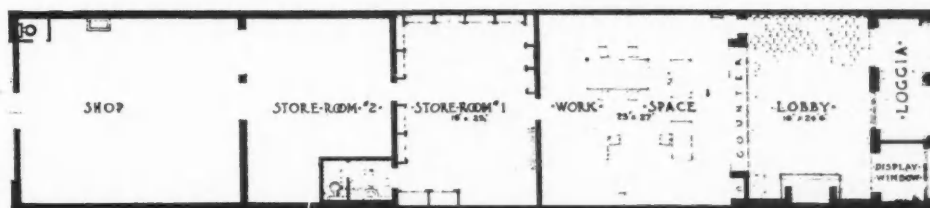


ALTERATIONS AT NO. 915 STATE ST.
FOR SANTA FE RAILWAY CO.
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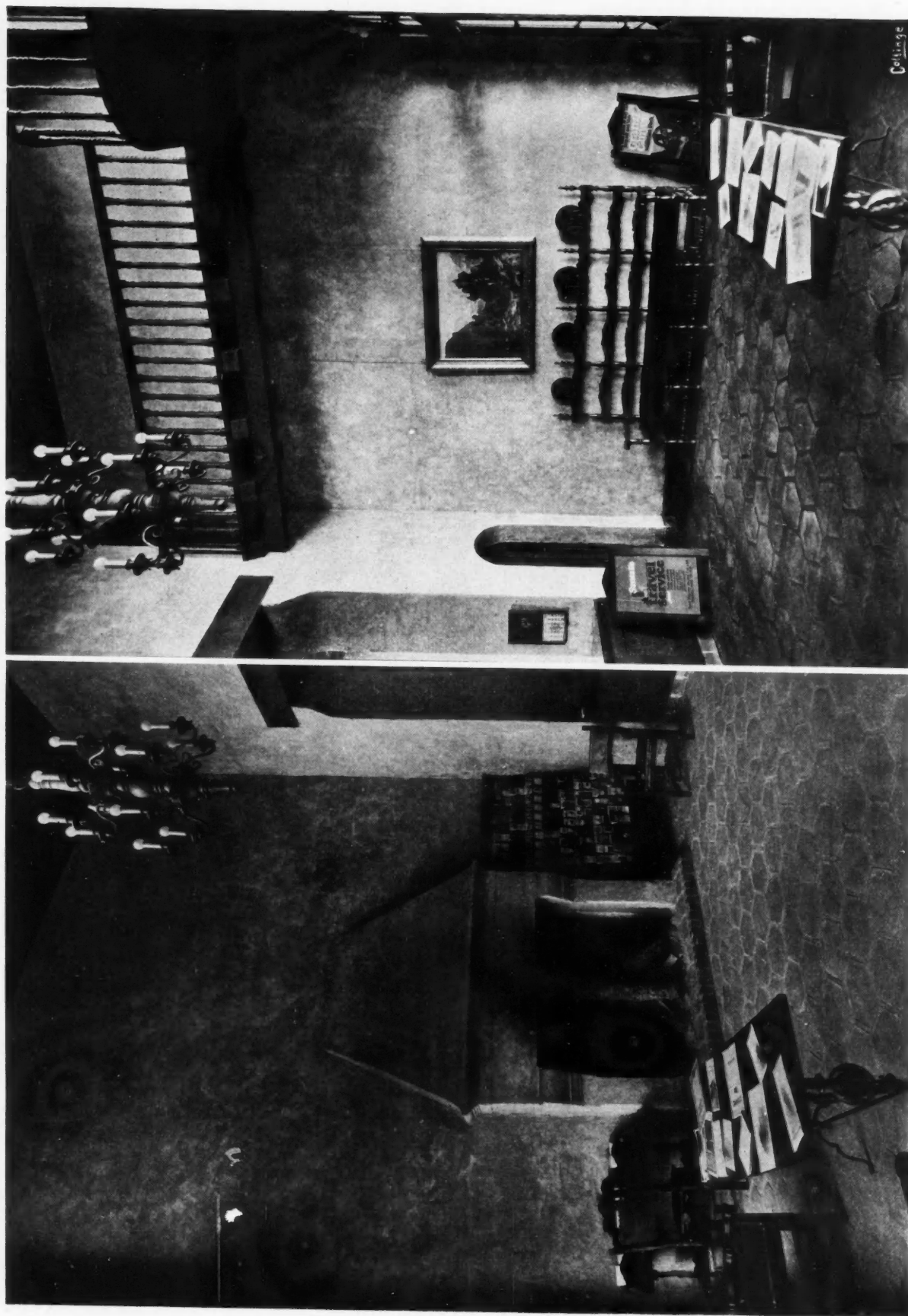
SOULE MURPHY & HASTINGS
ARCHITECTS



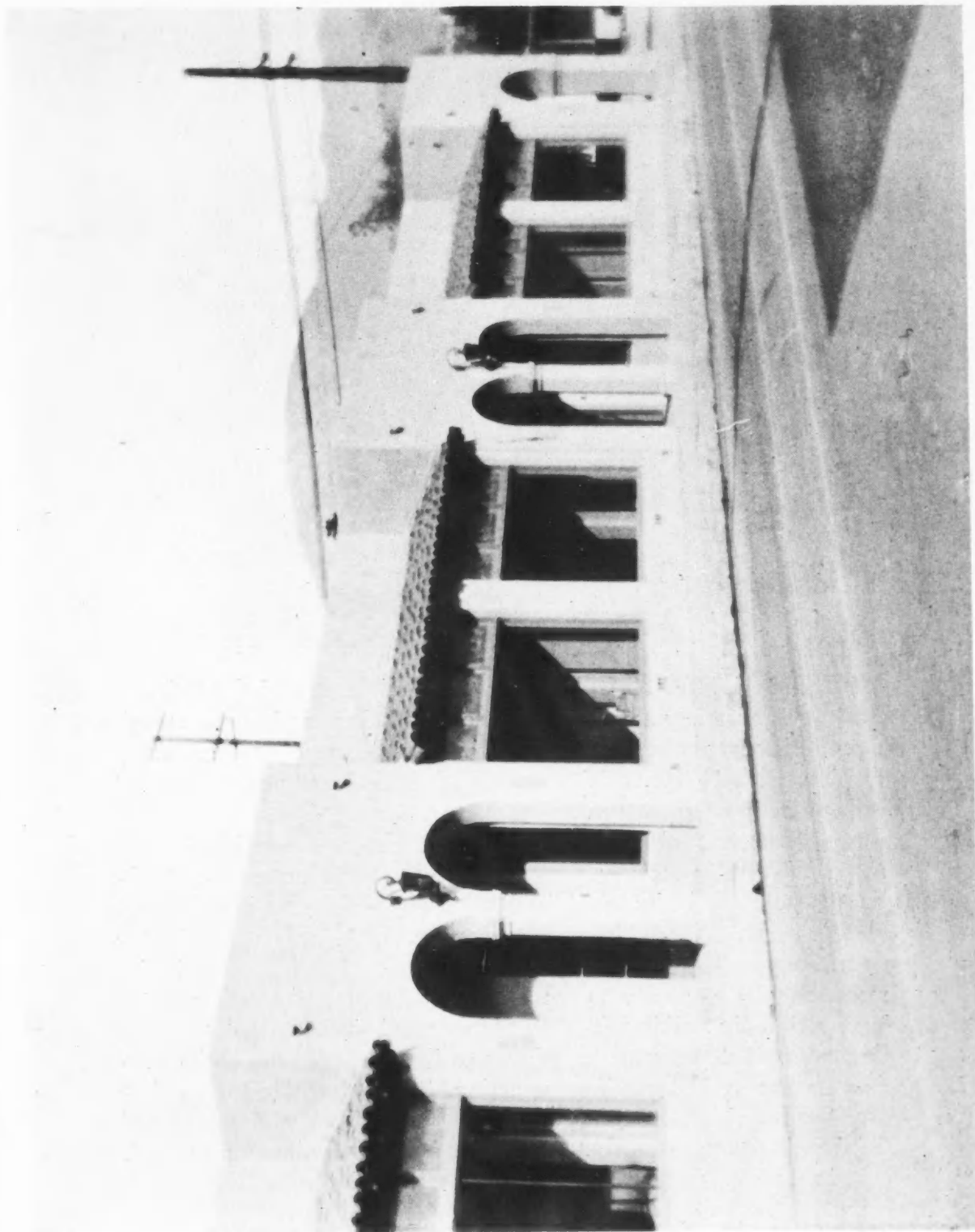
SECTION



SANTA FE TICKET OFFICE, SANTA BARBARA, CALIFORNIA
SOULE, MURPHY AND HASTINGS, ARCHITECTS



INTERIORS, SANTA FE TICKET OFFICE, SANTA BARBARA, CALIFORNIA. SOULE, MURPHY AND HASTINGS, ARCHITECTS



THE F. P. KNOTT STORES, SANTA BARBARA, CALIFORNIA. SOULE, MURPHY AND HASTINGS, ARCHITECTS

Colors of France

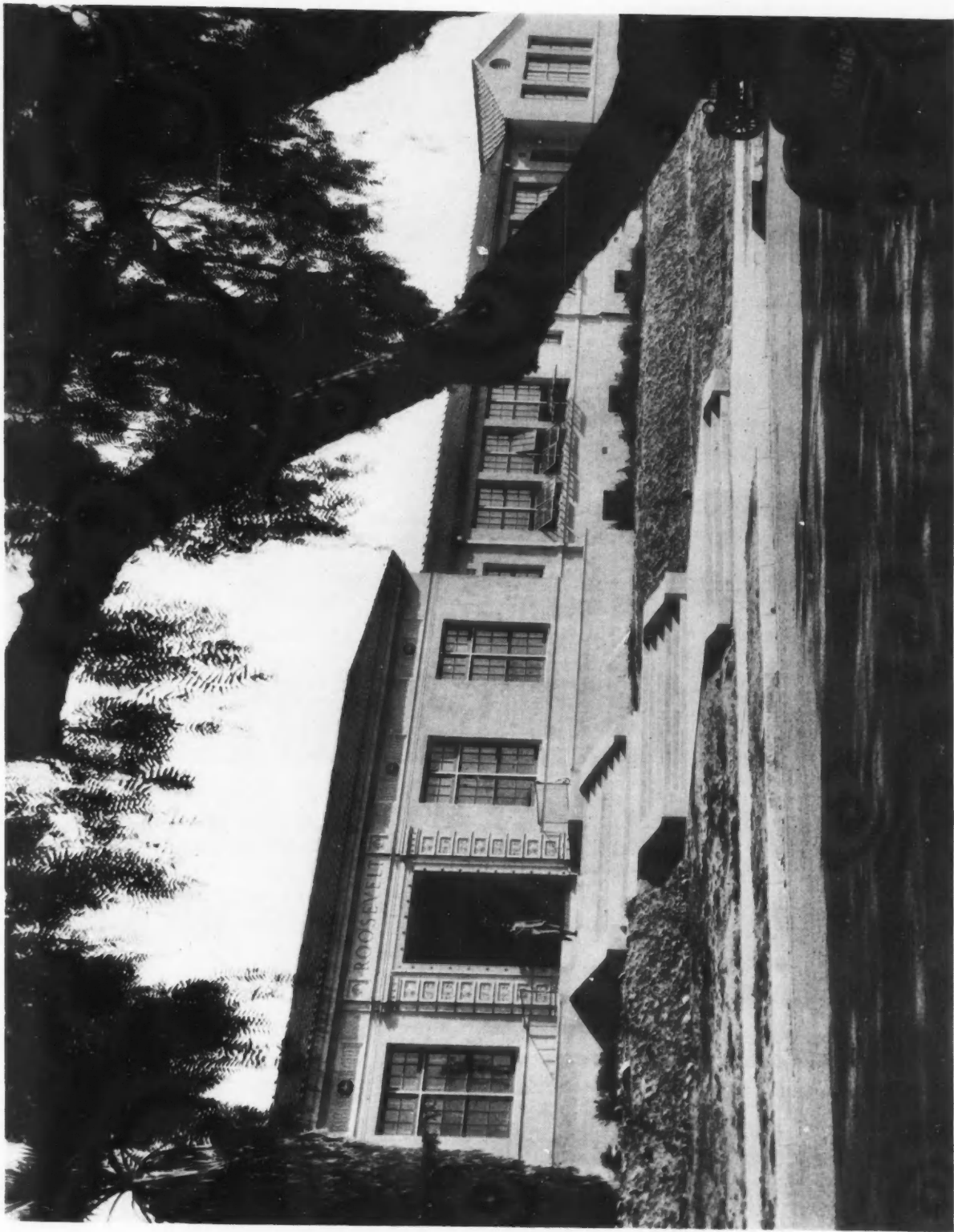


Pierpont & Walter S. Davis, Architects, are the creators of this delightful bit of French architecture. The French Village, at Calhoun and Highland Avenues, is finished in California Stucco.

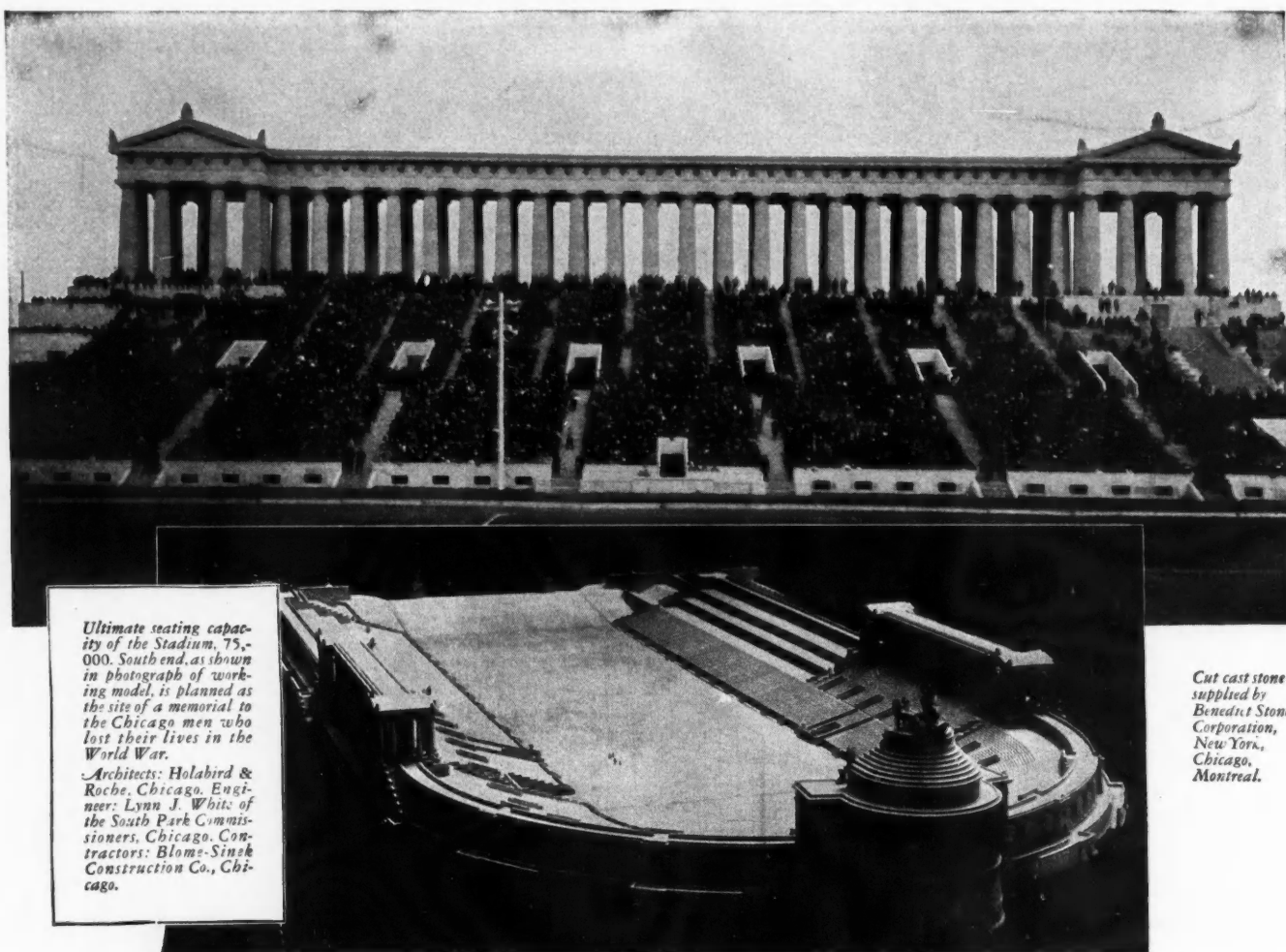
CALIFORNIA STUCCO is consistently first and final choice where variety and permanency of coloring are important. A twentieth century renaissance in the architecture of all nations is possible with California Stucco. It gives designer and contractor alike a new confidence in stucco construction and positive control over the elements, for California Stucco *endures*. There is no stucco more universally used by the leaders in the building world. California Stucco is the by-word for first grade stucco construction from coast to coast. Month by month stucco yardage is increased—the demand for stucco grows—largely due to our development work in the interests of plasterers who use California Stucco. Our laboratories are continually striving for new textures and tints while California Stucco applied years ago continues to build confidence in its performance in every type of construction. This is in-built quality that cannot be sacrificed by a single bag of inferior product. Each bag of California Stucco is perfect stucco insurance. Eliminate guesswork in stucco results and build forever with California Stucco.

California Stucco Products Co. Los Angeles, California

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SEATTLE, WASH. California Stucco Co. of Washington 4523 Shilshole Ave.	EDGEWATER, COLO. California Stucco Products Co. of Colo. West Colfax and Wadsworth, Route 2	CAMBRIDGE, MASS. California Stucco Products Co. of New England 411 Walden St.	ST. LOUIS, MO. St. Louis Material & Supply Co. 314 North Fourth St.	CHATTANOOGA, TENN. Dixie Concrete Products Company 1013 James Bldg.



ROOSEVELT SCHOOL, SANTA BARBARA, CALIFORNIA. SOULE, MURPHY AND HASTINGS, ARCHITECTS



Ultimate seating capacity of the Stadium, 75,000. South end, as shown in photograph of working model, is planned as the site of a memorial to the Chicago men who lost their lives in the World War.

Architects: Holabird & Roche, Chicago. Engineer: Lynn J. White, of the South Park Commissioners, Chicago. Contractors: Blome-Sinck Construction Co., Chicago.

Cut cast stone supplied by Benedict Stone Corporation, New York, Chicago, Montreal.

Ancient Greece in Modern Concrete

To those who still believe that the architectural beauty of the ancients can be expressed only in traditional materials, Grant Park Stadium, Chicago, will be a revelation.

This monumental structure takes you back to "the glory that was Greece." And it is done entirely in concrete. This includes the columns and other exterior architectural details, all of which are of cut cast stone. Thus beauty, as well as construction, is made permanent.

Grant Park Stadium is only one of a great variety of structures that impressively demonstrate the wide range of adaptability concrete offers to the architect—a range not within the possibilities of any other material.

* * *

If you are interested in receiving additional data on concrete in stadium construction, address the nearest office listed below. Ask for leaflets S-112 and S-104.

PORTLAND CEMENT ASSOCIATION

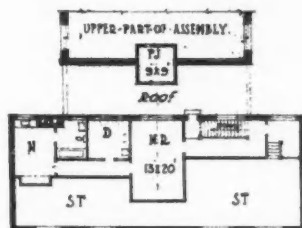
A National Organization to Improve and Extend the Uses of Concrete

ATLANTA	BOSTON	COLUMBUS	DETROIT	LOS ANGELES	NEW ORLEANS	PHILADELPHIA	
BIRMINGHAM	CHARLOTTE, N. C.	DALLAS	INDIANAPOLIS	MILWAUKEE	NEW YORK	PITTSBURGH	SAN FRANCISCO
	CHICAGO	DENVER	JACKSONVILLE	MINNEAPOLIS	OKLAHOMA CITY	PORTLAND, OREG.	SEATTLE
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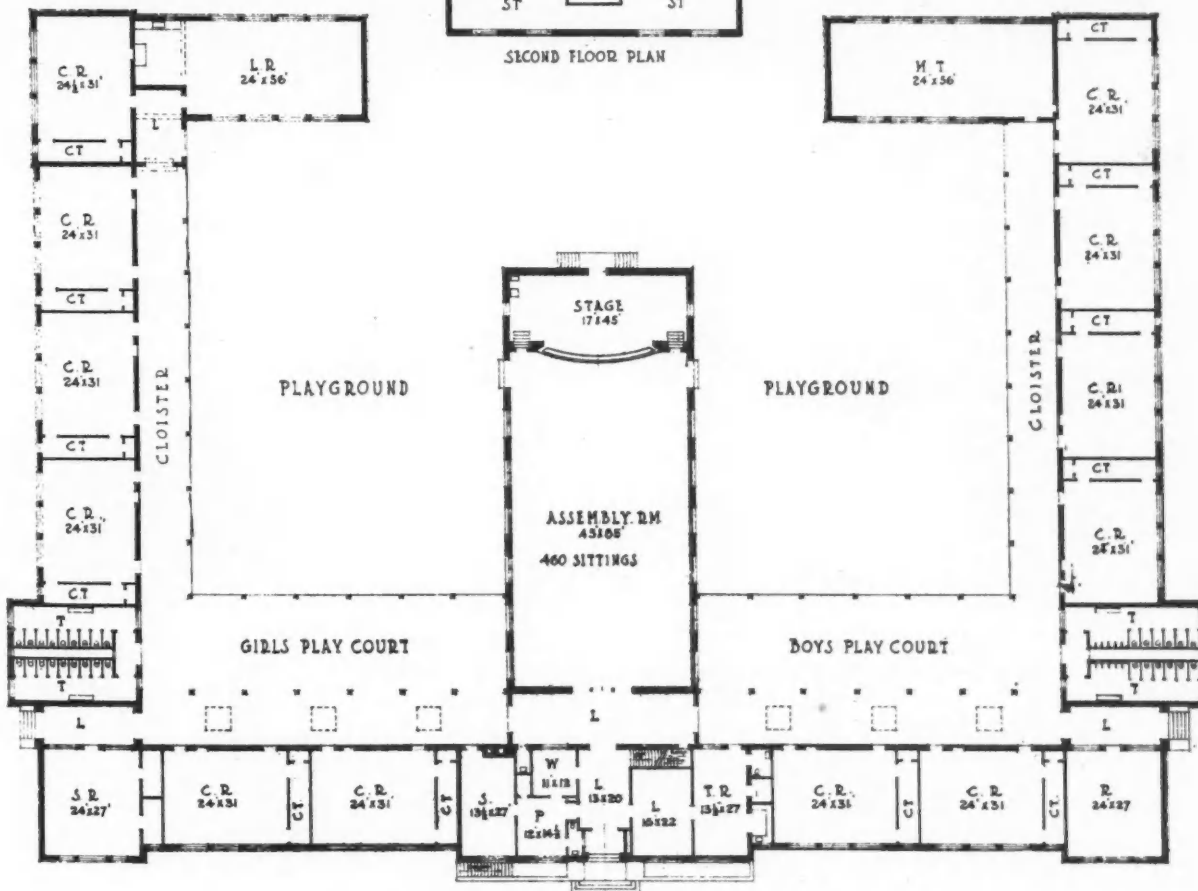


• KEY TO ROOMS •
 L.R. = LUNCH ROOM.
 C.R. = CLASS ROOM.
 C.T. = COAT ROOM.
 C. = CLOSET.
 T. = TOILETS.
 S.R. = SEWING ROOM.
 L. = LOBBY.
 S. = SUPPLIES.
 P. = PRINCIPAL'S ROOM.



SECOND FLOOR PLAN

W. = WAITING ROOM.
 T.R. = TEACHERS ROOM.
 L.D. = LIBRARY.
 D. = RECITATION ROOM.
 M.T. = MANUAL TRAINING.
 N. = NURSE.
 N.R. = NURSES WAITING ROOM.
 D. = DENTIST.
 S.T. = STORAGE.
 P.J. = PROJECTION BOOTH.



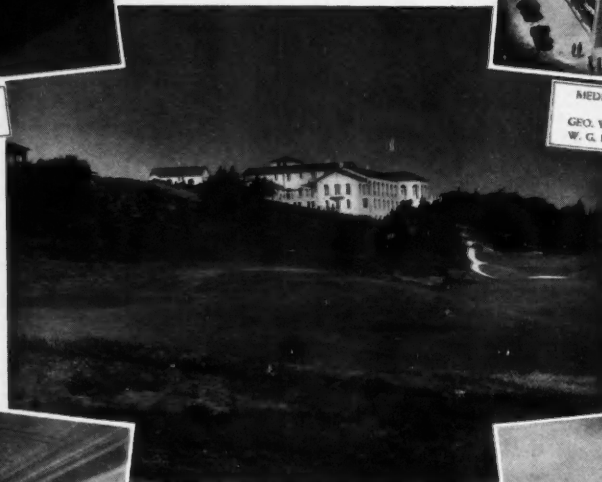
FRANKLIN SCHOOL, SANTA BARBARA, CALIFORNIA. SOULE, MURPHY AND HASTINGS, ARCHITECTS



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SAN FRANCISCO
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OLYMPIC GOLF AND COUNTRY CLUB - SAN FRANCISCO
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PACIFIC TELEPHONE AND TELEGRAPH COMPANY BUSINESS OFFICES
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BLESS & FLAVILLE, ARCHITECTS



ATHENS ATHLETIC CLUB - OAKLAND
WM. KNOWLES, ARCHITECT

Perma-Light Wall Finishes

WERE USED THROUGHOUT in all the above architectural landmarks recently erected, with the exception of eight floors in the Pacific Gas and Electric Company's Building (which were divided among several other makes).

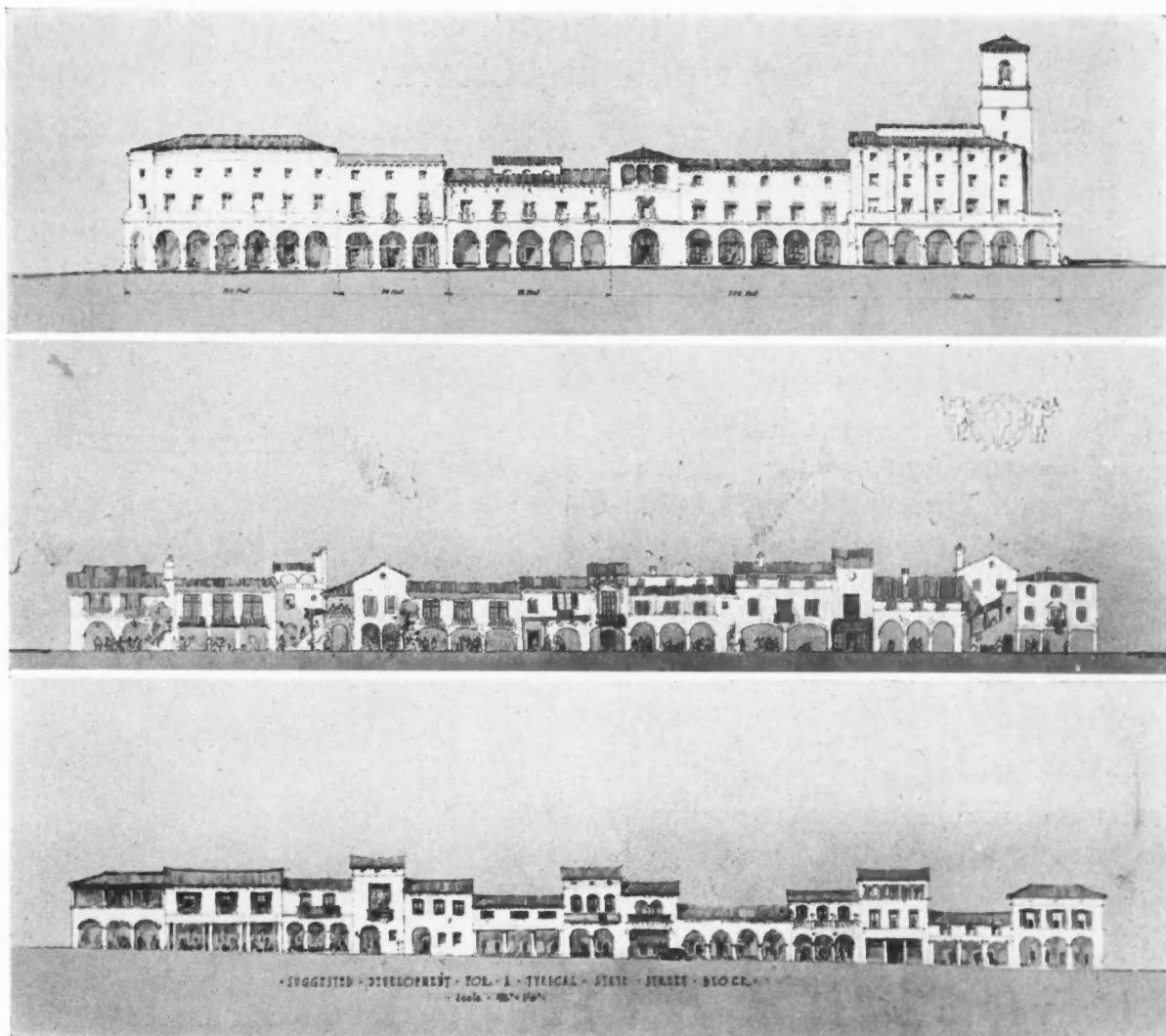
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STUDIES FOR TREATMENT OF STATE STREET (AVENIDA ESTADA), SANTA BARBARA, CALIFORNIA
PLANS AND PLANTING COMMITTEE

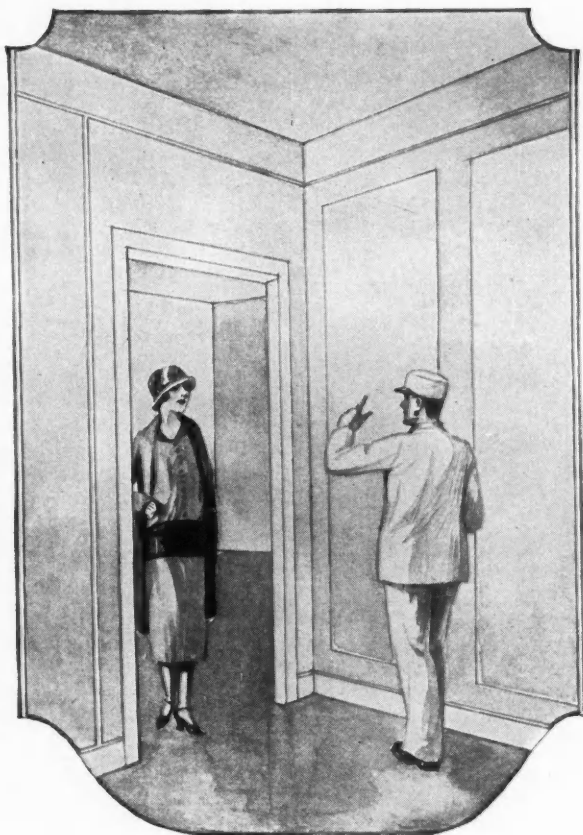
BUTTRESS PLASTER LATH

*Makes Walls and Ceilings
of Enduring Charm*

To be sure of securing walls and ceilings which, by their flawless beauty and charm, emphasize the perfection of a home, it is necessary to have the plastering done over a strong base which will not absorb moisture, swell, crack, or buckle.

The appearance of the finished interior depends largely on the skill of the plasterer. Therefore he should not be handicapped by a poor base to work on.

Buttress Plaster Lath is made of gypsum rock plaster, compressed for strength between two sheets of tough paper. This strong "solid" lath provides an ideal plastering base and assures walls and ceilings that are insulators against heat and cold, practically sound-proof, and 100 per cent more fire-resistive than wood lath and plaster construction.



Prevents Unsightly Cracks and Broken Plaster

Because it is "cured" in the manufacturing process, Buttress Plaster Lath does not buckle nor shrink after being applied. Its use, therefore, prevents the appearance of ugly plaster cracks in the walls, ceilings and corners. Nor will plaster applied to this material leave a spotted surface, even in the driest weather. Specify it on your next job and note the beauty of the finished work.

SOLD BY ALL BUILDING MATERIAL DEALERS

*Write for Free Sample and Descriptive Circular
About Buttress Plaster Lath*

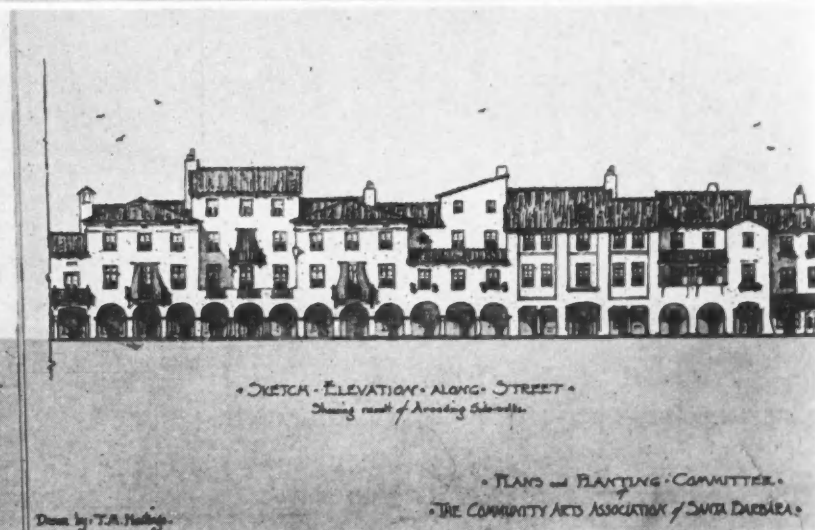
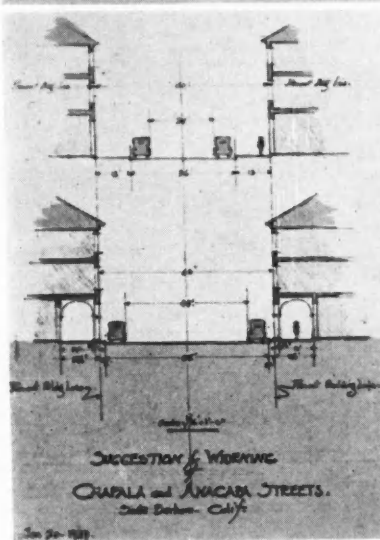
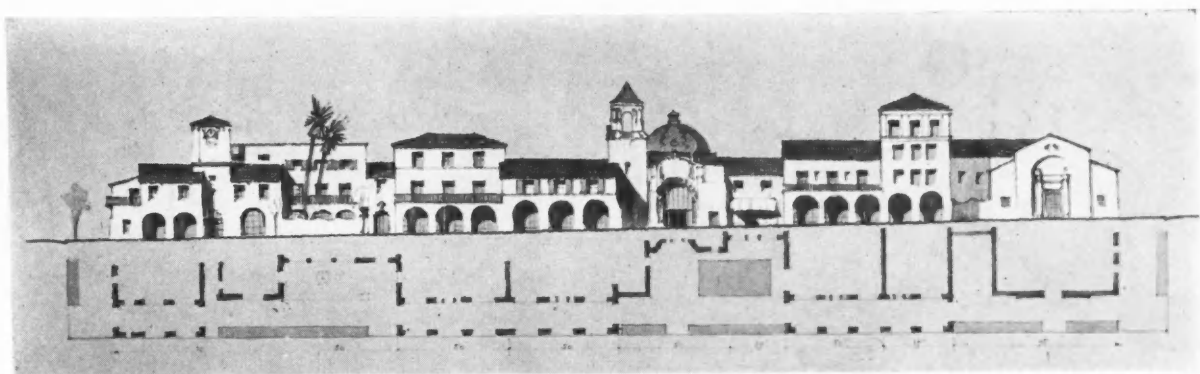


Buttress Manufacturing Co.

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Los Angeles

California



STUDIES FOR TREATMENT OF SANTA BARBARA STREETS. PLANS AND PLANTING COMMITTEE

California PINE

California
White Pine
trade name

California
Sugar Pine

Sidings that look well and "stay put"

THE HOUSE with California Pine siding stands as a permanent display of the architect's good judgment.

Siding of California Pine, not only looks well to start with, but *holds* its shape, lays flat without warping or end-shrinking, twisting or splitting. That is because of the remarkable cellular construction of California Pine, and its susceptibility to perfect seasoning.

Builders and carpenters, likewise welcome the specification of California Pine siding. The builder, because this siding is obtainable in all the various forms, of standard widths and lengths—the carpenter, because California Pine siding is so easy to cut, fit and nail securely to the sheathing. All of which makes for good workmanship without waste of time.

Then, as to painting—this light-colored, soft pine is easy to paint. The brush



Carpenters like California Pine siding because it's easy to cut and fit, and makes for good workmanship.



Cork-like texture holds nails tightly and prevents splitting even with nails driven close to edge or end.



Paint flows evenly and spreads smoothly on California Pine. It *holds* paint well and the coat stays smooth.

moves along readily while the paint flows evenly and spreads smoothly. California Pine holds paint—the coat *stays* smooth, because of freedom from pitch and grain-raising tendencies.

If you have not received a set of our Information Sheets on California Pine, let us send them to you. You are also invited to correspond with our Wood Technologist, formerly with the U.S. Government Forest Products Laboratory, at Madison, Wisconsin, and now connected with this association.

California White and Sugar Pine Manufacturers Association

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· EDITORIAL ·

What Price Advertising Glory?

SPEAKING to a business club recently, the representative of a large advertising agency stated that out of one billion dollars spent this year in advertising, half would be wasted.

That wasted wealth about equals our annual fire loss. It is of too much consequence to be forgotten—to be ridiculed—to be condoned. What proportion of it goes into casual, spasmodic "special editions" in connection with the building industry which serve no purpose but to flatter someone's vanity and which hardly ever succeed in that, since they are seldom well done, can only be guessed at.

Such an amount put back into the factories for the improvement of conditions and service and quality, or put into intelligent and truthful spread of real information to consumers, would be of incalculable benefit to the country.

Hopeless as individual protest or action may seem, it is an obvious obligation, and must have a cumulative effect. As far as this journal is concerned, this is our creed; we believe:

That an advertisement should be truthful.

That it should give or offer definite, accurate information concerning:

1. What the article or service is.
2. How it is used or performed.
3. Where it has been used or performed.
4. Scientific or official data as to merit.
5. Latest improvements or devices.

That it should be attractive in appearance, concise and easily read.

That a journal should not knowingly publish the advertisement of any firm or person unworthy of patronage.

On the receiving end of the message, we may add, we believe the reader should appreciate the effort made to assist him to an intelligent choice of materials and workmanship, and should cooperate by approval or criticism. Constructive comments are very welcome.

* * *

The Architect and the Earthquake

DR. BAILEY WILLIS of Stanford University, president of the Seismological Society of America, has been jocularly called a "wizard" because he managed to be "present in person" when the earthquake visited Santa Barbara last June. However that may be, it was a fortunate circumstance that this thoughtful scientist should be on the ground to add first-hand observations to the years he has devoted to a study of seis-

mic disturbances. And it is fortunate, too, that Dr. Willis is not only a profound student but has the ability and the will to express himself clearly. We believe that every architect will find the article by Dr. Willis, "Designing Against Earthquakes," in this issue of real value. For our part, we feel complimented, indeed, that this distinguished scientist should choose the PACIFIC COAST ARCHITECT as the medium in which to convey his thoughtful paper to the profession.

* * *

A European Pilgrimage

ARCHITECTS and appreciative laymen—not such rare birds as some architects think—will be interested in the tour to be conducted by Albert Kelsey, F. A. I. A. The record of Mr. Kelsey as an architect and educator, his service to the Institute, his personal charm, have made him well known to the profession. The manner in which he proposes to lead this pilgrimage is unique and stimulating to the imagination.

"To revive the lost art of conversation, by conducting a series of causeries suggested by what we are to see . . . I must make the old familiar 'high spots' more interesting than they have ever been before. After that I can conduct to new and unfamiliar places in a spirit of adventure. . . . A leisurely, dilettanté tour for those interested in the rare, the precious and the beautiful; and especially for those who will delight in taking part in good conversation amid inspiring surroundings."

Starting from New York, February 25, North Africa, Sicily, Italy and France will be visited, reaching New York again May 25. All arrangements will be made by the Temple Tours offices.

* * *

Opinions Are Welcomed

AMONG letters we received in connection with the series of "Construction Lessons from Santa Barbara" was one from Mr. Edward Glass, an architect of high standing in San Francisco, in which he expressed some divergence from the opinions of one of our contributors. An answer was sent, telling him that if he cared to put his ideas into form for publication, we should be glad to give them space. The pages of this journal are open to any discussion tending to the good of the profession and to the improvement of building construction. The article giving his views was prepared by Mr. Glass, is printed in this issue and will be found well worth serious consideration.



Ask the nearest building material dealer for Booklet on Plastite, also complete plans and specifications for swimming pools and reservoirs.

"Let it rain—let it pour!"

THE Plastite house is waterproof. No gale can drive the water through its dense, hard walls. Neither cold nor heat can affect it. Once put in place, Plastite is *there to stay!* The wall is in reality a slab of watertite, reinforced concrete.

Plastite protects permanently—because it grows harder, stronger, more watertite, as the years go on. Plastite meets favor with plasterers because it mixes and trowels so easily, and cures firm and uniformly, without "craze" cracks.

Architects may specify Plastite with the certain knowledge that its use means complete satisfaction to the owner.

*Our illustrated magazine, "PLASTITE PROGRESS,"
will be sent on request.*

RIVERSIDE PORTLAND CEMENT CO.

724 So. SPRING STREET LOS ANGELES TRINITY 5951

SAN FRANCISCO CHAPTER AMERICAN INSTITUTE OF ARCHITECTS MONTHLY BULLETIN

OFFICERS

JOHN REID, JR., President
HARRIS ALLEN, Vice-President
ALBERT J. EVERS, Sec.-Treas.



DIRECTORS

J. S. FAIRWEATHER, three years
W. C. HAYS, three years
EARLE B. BERTZ, two years
WILL G. CORLETT, two years
GEORGE W. KELHAM, one year
ARTHUR BROWN, one year

NEXT MEETING

The next meeting will be held on Tuesday, November 17, 1925, in the rooms of the San Francisco Architectural Club, 77 O'Farrell street, at 6:30 p. m. Dinner will be served at 75 cents per plate.

OCTOBER MEETING

The Annual Meeting of The American Institute of Architects San Francisco Chapter was held on Tuesday evening, October 20, 1925, in the rooms of the San Francisco Architectural Club, 77 O'Farrell Street. The meeting was called to order at 7:45 by President Fairweather.

The following members were present:

Harris C. Allen, Chas. F. Maury, Morris M. Bruce, Jas. H. Mitchell, Sylvain Schnaittacher, Ernest Coxhead, Louis C. Mullgardt, Lewis P. Hobart, P. J. Herold, Rudolph Herold, G. F. Ashley, S. L. Hyman, Earle B. Bertz, W. C. Hays, E. H. Hildebrand, J. S. Fairweather, J. Reid, Jr., A. J. Evers.

REPORTS OF OFFICERS

President Fairweather read his report for the year. Moved, seconded and carried that the report be received and placed on file.

Report of the Secretary-Treasurer was read by the Secretary. Report of the Board of Directors, Education Fund, was read by the Secretary. Moved, seconded and carried that these reports be received and placed on file.

REPORTS OF STANDING COMMITTEES

Chairman Harris C. Allen reported for the Committee on Architectural Relations and Publicity.

Chairman S. Schnaittacher reported for the Committee on Competitions.

Chairman Coxhead reported progress for the Committee on Plan of Washington and Environs.

No reports were received from the following:

Committee on Regulations, Laws and Building Report; Committee on Historic Monuments; Committee on War Memorials; Committee on Education and Small Houses; Committee on Membership.

REPORT OF SPECIAL COMMITTEE

Chairman John Reid, Jr., reported for the Committee on Industrial Relations.

NOMINATION FOR HONORARY MEMBER

Letter from Otto Kleemann, stating that he is retiring from practice was read by the Secretary. Moved, seconded and carried that Otto Kleemann be made an Honorary Member of the Chapter without further payment of dues after the current year.

ELECTION OF OFFICERS

The candidates of the Nominating Committee were read by the President, as follows: President, John Reid, Jr.; Vice-President, Harris C. Allen; Secretary and Treasurer, Albert J. Evers. Directors: J. S. Fairweather, three years; W. C. Hays, three years.

Moved, seconded and carried that the Secretary cast the ballot.

(Directors Earle B. Bertz, Will C. Corlett, George W. Kelham and Arthur Brown are serving unexpired terms.)

NEW BUSINESS

President Fairweather turned the chair over to President-elect John Reid, Jr.

Moved, seconded and carried that the retiring officers be tendered a vote of thanks for their untiring efforts during the past year.

A communication from Pittsburgh Chapter, regarding the jail designed by H. H. Richardson, was read to the Chapter. Moved, seconded and carried that the Board of Directors communicate with the proper authorities asking that the problem be studied with the idea of saving Richardson's work.

Letter from the Builders Exchange, regarding adding percentage to bids for distribution, was read. Moved, seconded and carried that it is the sense of the Chapter that it would be inadvisable and impracticable to add a percentage as requested, and that the matter be referred to the Industrial Relations Committee for reply.

A letter from the Builders Exchange regarding the segregation of lathing from plastering in the specifications, was read. Moved, seconded and carried that it be reported as the sense of the meeting that this segregation is a matter of choice varying with the type of the work.

The subject of the visit of the Board of Directors of the Institute was brought up by Regional Director Schnaittacher. A letter from President Waid was read by Mr. Schnaittacher.

The meeting passed a vote of thanks to Gladding, McBean & Co. for keeping the sketches and photographs of Mr. Jesse Stanton on exhibition for the meeting.

Mr. Hildebrand reported the serious illness of August Headman. Secretary was instructed to write to Mr. Headman with Chapter good wishes.

There being no further business, the meeting adjourned.

Respectfully submitted,

ALBERT J. EVERS, Secretary

* * *

NATIONAL A. I. A. OFFICERS COMING

A visit of unusual importance to the architectural profession on the Pacific Coast will be made early next month. The national officers and directors of the American Institute of Architects will visit the Coast, reaching San Francisco December 8th. They will remain in San Francisco two days and plans for their entertainment include motor trips and an informal dinner at the Bohemian Club to which all architects of the vicinity will be invited. This is a rare occurrence and will afford opportunity to meet many of the national leaders of the profession.

Another Endorsement!



Long Beach Tests Prove Bishopric Base 241% Stronger Than Sheathing!

UP and down the Pacific Coast official city tests are proving that Bishopric Base makes walls twice as strong as 1-inch sheathing. In San Francisco, Bishopric Base is the only patented wall backing permitted. In Long Beach the city testing board found it 241 per cent stronger than ordinary lumber sheathing. Many other California cities are adopting this new, better way to build stronger walls.

And in the East, Bishopric Base has been a leader for 18 years in all big cities!

Remarkable strength is only *one* virtue of Bishopric Base. The dovetailed interlocking key—the strongest mechanical

key known to science—locks stucco or plaster to the wall, preventing cracking, buckling or sagging. Asphalt mastic, which cements the doubly-beveled lath to the fibre board, renders this Base proof against wind, rain, heat, cold and vermin.

And yet, Bishopric Base actually costs *less* in most cities!

We have prepared a complete Data File and working sample which will help you in drawing up plans and specifications. Request them by letter or telephone and they will be mailed at once. Bishopric Mfg. Co. of California, 604-626 E. 62nd St., Los Angeles. AXridge 9108.

Bishopric Base

SEE

HOW

IT

LOCKS

THE

CEMENT

For best results, we recommend 18 gauge wire netting to reinforce the cement.

TECHNICAL BUILDING QUESTIONS ANSWERED

[BY PAUL W. PENLAND]

Research Engineer, Blue Diamond Company, Los Angeles

A RESEARCH DEPARTMENT FOR THE CONVENIENCE OF READERS OF
THE PACIFIC COAST ARCHITECT. ALL INQUIRIES ARE WELCOME.

Q. Who pays the compensation insurance on a building?

A. The Contractor pays the compensation insurance on a building by taking out a policy or assuming full liability. However, there are cases where the owner takes out a policy and this relieves the contractor of further liability.

Q. Is compensation insurance part of the cost?

A. Yes, the contractor charges compensation insurance to the cost of each individual job.

Q. Is it necessary to put a preservative on Cedar shingles?

A. No, the lasting qualities of Cedar shingles are second only to Cypress; however, the life of shingles may be prolonged by dipping them in linseed oil or creosote.

Q. What is the status of a lien filed against a property on which there are already a mortgage and trust deed?

A. If lien is filed before recording of mortgage and trust deed, the lien shall take preference. If mortgage and trust deed are recorded before filing of lien, they shall take preference.

Q. Does the California Housing Law require a rear yard for one-family dwelling?

A. No, unless the building is so designed that the rear yard is required to serve as a light court for one or more living or sleeping rooms.

Q. I am building a home of seven rooms and know a contractor who will not charge me for the plans. I intend to inspect the job regularly to see that he fills the contract. Will I get the desired results to obtain a livable home for my family or should I employ an architect?

A. The value, from start to finish, of an intelligent and conscientious control of the multitude of details, by a competent architect should be given the greatest consideration in the building of your home. To produce a

home, no matter how small, of charm and character, one that is planned economically and conveniently, requires great skill and much experience. In addition, the plans and specifications should be figured in a competitive way by reliable contractors and the architect should be retained for supervision.

Q. My basement concrete floor has cracked in one spot and the finish is coming off. What is the best way to repair it?

A. Thoroughly scrub and clean the spot after all loose particles are removed. If the base is not jagged, roughen it. Soak the surface, but leave no film of water. Select, for patching material aggregate, the same as the original floor and mix the same proportions as originally used. Apply with pressure to obtain a good bond. Then do not disturb until the patch has hardened. While curing, cover with a 3-inch layer of wet sand.

Q. Are small knots a detriment to lumber for framing a house?

A. Small knots are not objectionable if they are sound. If the knots are large, the strength of the timber is very much reduced, and, if loose or dark in color, they will ultimately fall out, loose knots being the stubs of dead branches.

Q. How should a closet be lighted?

A. Closets should be provided with an outlet directly over the door in a horizontal position or vertically against the ceiling. It should never be placed in a position such that inflammable material may be placed against it. This lamp may conveniently be controlled by a door switch which throws on and off the current as the door is opened and closed. It is always advisable, however, to equip the lamp with a pull chain socket in order that the lamp may be turned off in case the door is to be kept open any length of time.

THE JEWEL OF ARCHITECTURAL CONSISTENCY

[Continued from page 5]

and his associates have been able to convince many practical investors that a building may show the solid substance of its construction and still be so attractive in design as to constitute a business asset. This is not only a feather in their own caps, but a big help to their professional brothers and, indeed, to the community. When it is added that these buildings are as strongly built as they look, and went through the recent earthquake with no damage worth mentioning, it is evident that virtue has been rewarded, and will doubtless reap further rewards in good season.

Among the residences here shown, the smaller ones are the more attractive. Why is this so often the case? Architects are always bemoaning the limitations of expense, and picturing the beauty possible to an open purse; and then the cottage turns out a veritable gem, while the mansion is cold and lacks "character"! I must not be interpreted, however, as criticizing such houses as those for Mr. Spaulding and Mr. Hodges, for they do have character, and very respectable it is; there is nothing either too thin or too heavy; they are dignified and well proportioned; however, I like the smaller houses better.

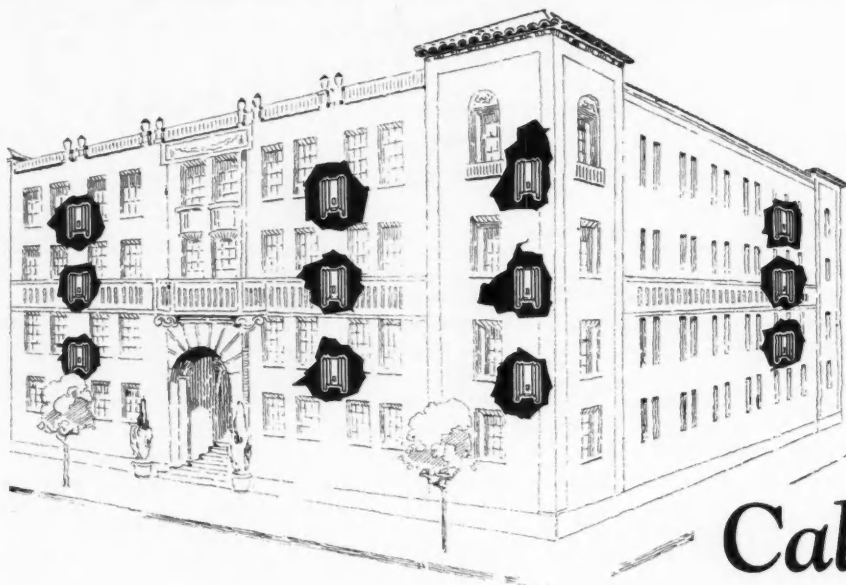
One building in a class quite by itself must not be overlooked, in which are housed the firm's own offices. It is even happier than the pictures indicate, for it is impossible to get a photograph from the angle of the sketch. The trees, which interfere with the camera, serve to make the effect all the better to the eye. Inspired by the picturesque homes of tillers of the soil in Romance lands, it serves well as quarters for the designers of homes and gardens.

A ticket office for the Santa Fe Railway is worth mention for the success with which the idea of attractive service to the public has been expressed.

It is fortunate that in this period of vital concern to Santa Barbara the young men who compose this firm should be in the full tide of their professional activity.

* * *
August G. Headman, a well-known architect of San Francisco and the founder of the San Francisco Architectural Club, succumbed to a long illness October 28. He was only 42 years old and his untimely passing is keenly regretted by his many friends in California.

* * *
L. J. Hendy, 1060 Bush Street, San Francisco, wishes to receive manufacturers' catalogues of all kinds and is particularly interested in those pertaining to garages, pumps and light machinery.



California's Climate calls for Localized heat!

It's a rare day in California that requires 24-hour heat. Take the chill off the room in the morning and the sunshine will do the rest, 11 months out of the year!

It is folly to keep a big central plant steamed up night and day to keep an office building comfortable.

Individual, localized heat from Pacific Gas-Steam Radiators is the solu-

tion. When the tenant wants heat, he gets it,—clean, healthful heat in just the right amount. When he has enough, expense stops. No wasteful central plant to heat up, then cool off.

This is the new accepted method for California buildings. Get details today from a Pacific Heating Engineer for inclusion in your next plans. Send the coupon at once.

Pacific Gas Radiator Gas Heating Company Headquarters

1740 W. Washington St., BEacon 2190; 616 W. 8th St., MEtropolitan 2398
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Here are the five leading types of Pacific Gas Heating Appliances. They ventilate while they heat.

Pacific Pressed
Metal and Cast
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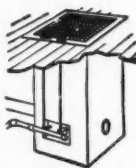
An exclusive air circulation system—develops greater heat at a 25 per cent saving in gas. Sturdier construction. Special Features.

Pacific Gas
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Provide steam heat at lower cost than a central steam heating plant. Automatic Control.

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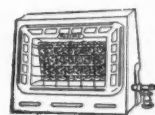
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Pacific Gas
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Heaters



Furnished in any desired finish. An air duct supplies a continuous stream of fresh air to the flame. Outer casing is always cool.

MODERN HEATING AND VENTILATING PROBLEMS

II

INSTANTANEOUS AND STORAGE WATER HEATERS

[BY THOMAS B. HUNTER]

Hunter & Hudson, Consulting Engineers

AUTHOR'S NOTE.—This is the second of a series of informative articles regarding the selection and installation of modern types of cooking, water-heating and space-heating equipment. The third will appear in the December issue.



AMONG practical men concerned with actual installations of instantaneous, automatic or automatic storage gas water heaters, it seems to be agreed that the flue or vent is of the utmost importance. Yet these same men will tell you that engineers and architects, in designing new buildings, frequently fail to provide proper sized flues or neglect to carry the connection from heater to flue at a proper angle.

Where much of the misunderstanding of flue requirements arises is in the fact that many seem to regard the flue as a mere vent to carry away the fumes. This is not its only function. It takes air to make fire burn and it is necessary, therefore, for the flue to be large enough to create sufficient draft to draw thru the heater the required supply of air. But it is also necessary that the top of the flue be carried high enough above the roof—at least two feet above the highest point of the roof—and provided with some form of top to prevent down draft.

What is the minimum flue area for the instantaneous automatic type of gas water heater? In every case it should be at least six inches in diameter, except for the small 2-gallon and 2½-gallon per minute heaters where a flue five inches in diameter is permissible. But for the popular 3-gallon and 4-gallon types, a six-inch flue is required. For a 6-gallon per minute heater, the flue should be not less than seven inches, and for an 8-gallon heater at least eight inches.

It is, of course, a dangerous practice to carry the vent from the water heater into the same outlet as that used by a coal stove or furnace, or a gas range, with the built-in kitchen heater. If flue conditions are such that condensation is not quickly eliminated, a permanent drain should be provided. This should be done with any of the larger types of instantaneous water heaters in any event.

There is no denying that one of the outstanding developments in the gas appliance field has been the growth of gas water heating. Within the recollection of many of the present generation who have not yet reached middle age, the Saturday night bath was an ordeal.

Many can recall the day when the old galvanized or wooden tub sat yawning in the place of honor in the middle of the kitchen floor, while the decks were cleared for action. The family wash boiler, buckets, kettles and pans covered the top of the red-hot kitchen range and steam clouds rose like incense to the God of Cleanliness. The family waited in various states of preparedness in the sitting-living-dining room. Generally, the children came first, or rather they didn't come—they were "rounded up and dragged"—squirming to the brink of the tub while the elders of the family wrestled in the super-heated kitchen filling more kettles and pans with water to be heated for the next victim. Father came next to last and when weary Mother got her turn, she took what partly heated water was available, slithered across a floor well-smeared with soapsuds and laved her tired body in water that was just as much too cold as the first baths had been too hot.

Contrast these none-too-remote Saturday nights with the convenience and luxury of even the most modest modern home when every member of the family may now

have unlimited hot water instantly at the turn of the faucet, any day or any night. One cannot view these two pictures without a sense of gratitude to the gas industry for the tremendous strides it has made. All that the user needs to know about any of the modern heaters is "Turn on the faucet," provided that the engineer or architect has done his work properly.

And those of us concerned with the designing of homes owe it to our profession and to our clients to see that this great convenience is properly installed so that it will function with the greatest efficiency. To secure the best possible service the hot water piping should be designed and installed to provide continuous circulation thru the system. With this hot water is available instantly at all fixtures. This will usually add only a few feet of one-half or three-quarter inch pipe. This should be used with either an instantaneous or storage type heater. The entire system of hot water piping, including any storage tanks, should be covered with asbestos or magnesia covering, the cost of which will be saved in a few years by the saving in gas.

We must study the capacity required and make sure that it is sufficient to meet the maximum demand based on baths per person, housework, dish-washer, washing machine and other hot water demands.

We must not permit the installation of an instantaneous hot water heater where the water pressure is less than 25 pounds at the highest fixture or where the gas pressure is low. (Some authorities consider 15 lbs. water pressure sufficient but 25 lbs. is better.)

Where there is low water pressure or low gas pressure, we must influence our client to install a storage system. Heaters of this type operate independently of variations in gas or water pressure and maintain water at the exact temperature for which the thermostatic moment valve control is set.

We should remember, after we have determined the type and size of gas water heater to be used, to place the heater in such a location as to insure the shortest distance of water travel between heater and faucets.

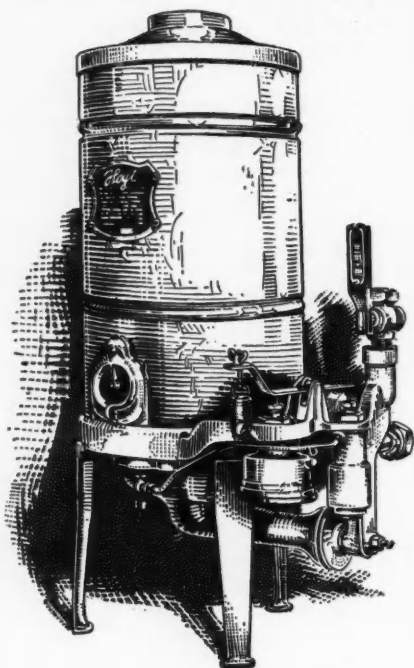
The gas line should be run direct from the meter and should be of sufficient size.

There is no question that proper determination of the size of the heater to be installed does not always receive the thought and care that it should. Some storage heaters with a capacity of 18 gallons of hot water are being installed where 60 gallons should be provided. With most of the storage systems, they recuperate completely, after depletion of hot water, inside of half an hour. But, as often happens, when three members of the family want to use the bath at almost the same time and the tank capacity is only 20 gallons, the first gets 10 gallons of hot water, the second ten gallons that is only lukewarm and the third is out of luck. Every heater should be of size sufficient to take care of any needs that might arise. Between 20 and 60 gallons capacity there is scarcely any difference in first cost or maintenance cost when divided over a period of years.

Many of the modern apartment buildings of four, six and eight apartments are installing individual instantaneous hot water heaters in each apartment. The first cost is cheaper than with a central water-heating system and the individual heater is much more satisfactory to

[Concluded on page 46]

Economize with Hoyts



New Model 30

The Hoyt Automatic Water Heater, New Model 30, has created widespread interest among the leading Architects, Contractors and Plumbers.

Low First Cost

Simple construction and few complicated parts reduce manufacturing costs, allowing us to sell this heater for \$60, installed. It combines the qualities of Beauty, Durability, Service and Economy — features which are vital to a high-class heater.

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The water is heated but once—when it passes through the coils as the faucet is opened, and is ready for immediate use. An unlimited supply of hot water is available, with no waste.

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EARTHQUAKE-RESISTING FOUNDATIONS

[Continued from page 6]

ings, on account of the cellular construction, but also a considerable degree of flexibility, which is what we most need to have in a foundation to stand and absorb earthquake shocks without distortions or disintegration.

It seems to us that such structures can be made typical and standard for earthquake countries like ours and be adaptable to all classes and kinds of buildings of a certain magnitude. This is possible by altering the general dimensions in each case, say the size of the cells and the general reinforcement.

No consideration for concentrated loads are necessary for transmitting them through the piers to the soil below. Previous to the building of the raft, care should be taken to consolidate the ground where required, especially in those points of heavy concentrated loads. Such consolidation, partial or total, would be made by the incorporation in the soil of piles or other materials in order to increase locally the density and, consequently, the bearing power of the soil.

We do not expect that this very brief description, outlining the typical foundation we suggest for earthquake areas, will be accepted by all the Engineers and Architects, especially by those who want fundamental formulas more than theoretical considerations or at least exhaustive and well conducted experiments, but we will be glad if this sketch of ours will serve to induce others to work out this important problem even in a very different way and along lines of their own experiences.

Of course, for the smaller types of buildings it will be possible to modify the ideas suggested by us by causing the various footings to be tied together in such a way that the building will swing as a unit. The average building, although well tied and braced above the ground, is designed primarily for gravitational stresses only. They are not designed to resist the lateral dynamic forces.

Further studies of this important problem, by our California Engineers and Architects, would be very welcome, for we must learn to build in our part of the country in such a manner as to resist such disastrous earthquakes as the last one of Santa Barbara.

* * *

MODERN HEATING AND VENTILATING

[Continued from page 45]

tenant and owner because it assures the small user of hot water that he will not be paying for the heating of water used by his neighbors. The maintenance cost is, of course, eliminated and the operating cost to each tenant very low.

In this article an effort has been made to point out, in a general way, some of the more important rules for gas water heater installation, but not infrequently the individual installation offers its special problem. The engineer and architect has available detailed instructions with diagrams and specifications from many of the numerous manufacturers of gas water heating appliances and nearly all of them maintain excellent installation advisors who are practical men, eager to serve you without charge. The wise architect will make use of their services. The wiser he is the more often he will call upon them. For proper installation is the real key, and the only key, to completely successful hot water heating with gas.

"FYER-WALL"

ALL METAL FIRE DOORS

High Grade Sheet Metal and Kalamein Work

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NATIONAL MONTHLY BUILDING SURVEY

[PREPARED BY S. W. STRAUS & CO.]



UNPRECEDENTED building activities continue throughout the greater part of the country with no indications of an immediate let-up. September permits and plans filed in 369 leading cities and towns showed a gain of nearly 40 per cent over the same month last year and 17 per cent for the nine-months period ended September 30.

While gains are fairly general a somewhat spectacular situation exists in New York City where there was a 91 per cent gain over September last year. For the nine-months period, however, New York is only 11 per cent ahead of 1924.

The South again led all sections of the country. Miami established a record of unusual interest, ranking eleventh among the cities of the United States in building activities since January 1. The fourteen principal cities of Florida reported building permits of \$25,582,231 for September as against \$5,447,341 for the same month last year. Birmingham, Ala., Louisville and several of the larger Texas cities also displayed great activity. The indications seem to be that the ensuing winter will

witness a continuation of extensive building operations in many parts of the South.

For the first time in the history of the country, the 25 leading cities passed the \$2,000,000,000 mark for the three-quarters period. In Boston more than \$10,000,000 of plans were filed in September, giving that city fifth place with a gain of more than 170 per cent. St. Louis, Pittsburgh, Portland, Ore., Kansas City, Seattle and Buffalo also reported greatly increased volumes of current building.

THE LABOR SITUATION

The situation in the building crafts was reported generally well stabilized. The settlement of the jurisdictional dispute between the international union of bricklayers and plasterers was looked upon as an important factor. No acute shortage of labor was reported and employment conditions seemed to be in a very wholesome condition. In Florida many contractors were working their employees nine and ten hours a day, the wage scale for skilled mechanics ranging from \$12 to \$15 a day with time and a half for work in excess of the standard eight-hour workday. Notwithstanding the abundant construction now in progress in Florida contractors there reported that sufficient labor was available.

DESIGNING AGAINST EARTHQUAKES

[Continued from page 6]

trough meet or augmenting the effect where crest and crest or trough and trough coincide.

You can simulate this tangle of radiant waves by causing a pane of glass, which should be firmly clamped at one edge, to vibrate by drawing a violin bow across its free edge. If the glass be covered with sand the grains will arrange themselves in patterns, showing that there is order where we would expect chaos. In the case of an earthquake the arrangement assumed by the combina-

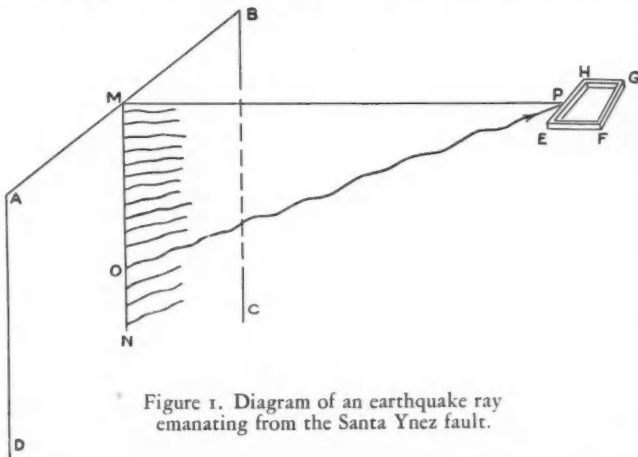


Figure 1. Diagram of an earthquake ray emanating from the Santa Ynez fault.

tions of elastic waves is in three dimensions instead of two as on the glass and it is so modified by variations in the local resilience of the rocks that we could not foresee the distribution of local maxima and minima even if we knew just how the energy would be radiated from the vibrating fault plane.

At first sight it would seem as though we might just as well throw up our hands and continue to go it blind, designing buildings without reference to earthquake faults. But some reflections on the situation in Santa Barbara would suggest otherwise.

The elastic energy radiated from a fault plane diminishes in intensity very rapidly with the distance. Other things being equal, the shortest line from a fault plane

to a building will be the direction of propagation of the most effective wave striking that building. In the case of a vertical fault, like ABCD in Fig. 1, this will lie in a line perpendicular to the fault plane, which will be on a level with the structure as MP. If the fault plane lies at a low angle, as in Fig. 2, the most effective wave will occupy a correspondingly steep position, as OP, and houses on the surface above such a fault will experience a vertical motion. Other rays will be projected from the front, as XY, and there will be those which when looked at in plan will appear perpendicular to the course of the fault. Vertical and the low angle faults both took part in the activity at Santa Barbara.

The low angle fault, shown in Fig. 2, represents the Mesa fault at Santa Barbara. Fig. 1, the diagram of a high angle fault, may stand for the Santa Ynez fault. The former lies south of the railroad tracks, surrounding the "Mesa" and dips southward under the Santa Barbara channel. The Santa Ynez fault skirts the base of the mountain range of the same name, running east and west.

The activity of the Mesa fault was demonstrated in two different ways. A resident of a house situated as indicated in Fig. 2 felt a vertical vibration and saw the tiles march

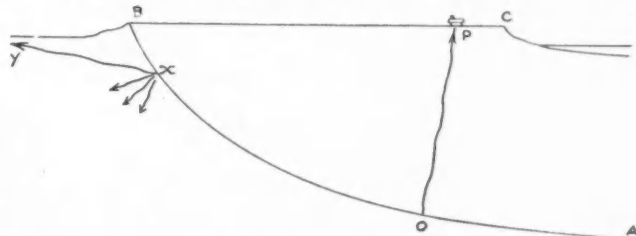
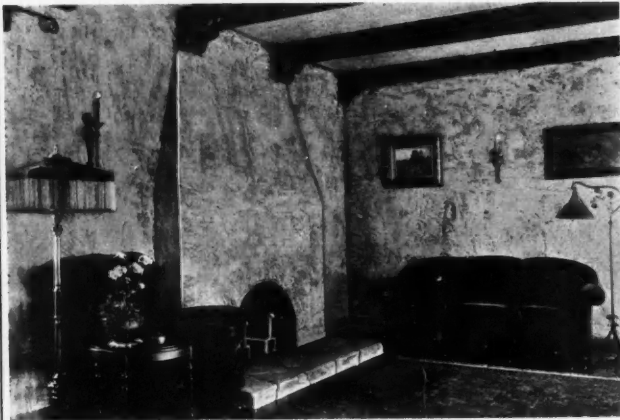


Figure 2. Diagram of the Mesa fault.

down the roof as they were jolted up and down, without violent lateral motion. Buildings on State Street, on the contrary, were struck by a wave which advanced nearly horizontally.

State street runs northwest and southeast, approximately parallel with a section of the Mesa fault and about a mile from it. The buildings, facing northeast and south-

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The Blue Diamond Plastering Campaign has nothing to sell but an *Idea*—an idea that will benefit the entire building industry—the idea of *quality workmanship* rather than dangerously *low prices*.

The builder is being told, frankly and fearlessly, what he should know about plastering—what Good Plastering means to him structurally, artistically and economically. He is being told how for centuries Good Plastering has been a medium for the expression of architectural ideas, and how a demand for cheap plastering will handicap the architect's efforts. He is being counseled to cooperate with his architect to obtain the Good Plastering he needs.

Watch the Blue Diamond Plastering advertisements appearing in Los Angeles newspapers every Wednesday.

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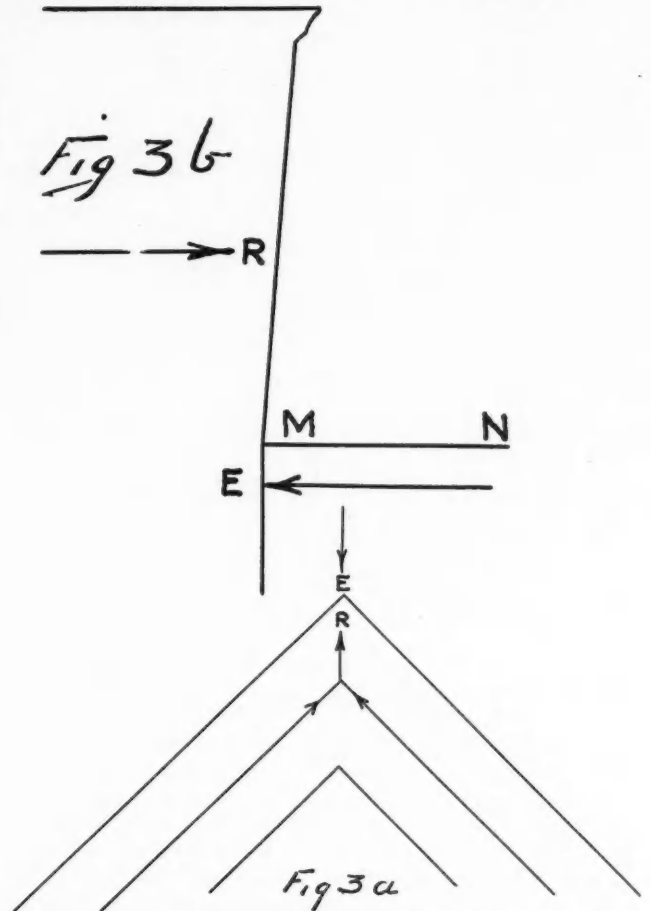
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west, had their parapet walls thrown into the street. The effect was sudden and violent. A wave, propagated northeastward, struck the foundations and threw the fronts out to a distance from the building line. That wave emanated from the front of the Mesa fault, as the writer



Figures 3a and 3b. Diagrams of the San Marcus Building in plan and elevation showing the reaction of the two wings upon the corner [a] and the couple under which the corner collapsed [b].

understands it. Its action could have been foreseen and the walls might have been tied into the frames of the stores and banks in such manner that there would have been but little damage. Fortunately there is good reason to believe Santa Barbara will profit by its sad experience.

Turning our attention to the Santa Ynez fault we may first take note of the evidence which shows that there was an impulse that was propagated southward from its surface. Whether it originated there or was reflected back is a question we need not consider here. Its effect on an automobile which was running southeast down State street caused the driver, an engineer, to look back to see who had run into him from behind. In so doing he saw the San Marcus building fall.

What had happened? A strong earthquake ray or impulse had come from a northwesterly or northerly direction and had driven the foundations of the San Marcus building southward with the ground in which they were set. Fig 3 a. The two wings opposed their inertia to the movement and offered a resistance equivalent to a force applied at the level of the center of gravity, that is somewhere near the level of the second story ceiling. The structure was thus subjected to the action of a couple, Fig. 3 b, the weight of both wings was thrown upon the column at the corner, and the column collapsed. We may pass over the weakness known to have affected the resistance of the concrete. Even if the strength of the concrete had been up to standard it may be doubted if the corner could have stood up under the excessive load

[Continued on page 51]

HOLLOW BUILDING TILE AND SANTA BARBARA

[BY CHARLES W. MEIGHAN]



HOLLOW building tile's ability to withstand violent earthquake shocks, when properly laid up, is set forth in a report of the Santa Barbara earthquake which has been issued by the Hollow Building Tile Association, Conway Building, Chicago, Illinois. The report which is presented in attractive booklet form and contains many graphic illustrations was prepared by Joseph K. Moore, consulting engineer, Hollow Building Tile Association, and M. B. Reilly, district manager, Pacific Northwest Brick Manufacturing Association. The report is being brought to the attention of engineers and architects by Mr. N. A. Dickey of the California Brick Company of San Francisco.

As is inevitable in disturbances like that which took place in June at Santa Barbara, a great mass of misinformation manages to get into circulation, in first reports. Too frequently, the building industry has seen some general disaster such as that at Santa Barbara seized upon by manufacturers of one kind of material to find fault with a competing kind. An overzealous enthusiast for reinforced concrete construction, for example, seizes upon an isolated building of brick, which was not properly designed in the first place, where foundations were inadequate, where walls were not properly tied and tells the world or as much of it as he can get to listen: "Ah, ha! All the brick in town fell down!" He neglects to point out that scores of other structures of brick, which were properly designed and properly constructed, came through without injury. And, too often, the brick man has followed similar tactics with reference to some other material with the result that the building industry is left with a mass of claims and counterclaims and no more real information than it had in the beginning.

Happily, Santa Barbara has seen less of this sort of thing than has been the case in similar upheavals in the past. It is true that in the first excitement of the disaster and for several days immediately following it, many misstatements found their way into the lay press. But the various material men now have alert, forward-looking associations and these associations, with scarcely an exception, have had men of unquestioned professional integrity conduct their investigations.

The result of all this has been that some really worthwhile lessons have come out of Santa Barbara and it seems to be generally agreed by all manufacturers of building materials of whatever kind that it is distinctly up to themselves to see that all building is done right and that all materials, if properly made and properly used, will serve the purpose for which they are intended.

The stucco man no longer insists that stucco is the only material; he is willing to admit that there are occasions when a brick or even two might be used to advantage. The brick man does not deny that there are times when stucco has its uses, the hollow-tile maker concedes that there are materials at least as good as his for certain purposes and the really hopeful thing is that all of them appear to be united on the broad, general principle that proper construction will stand, the other kind will fall and that it is the duty of all to work for good building in general.

Such is the underlying theme of most of the reports of various associations that have come from Santa Barbara and the very interesting report of the Hollow Tile Association is no exception. Messrs. Moore and Reilly point out that there were no failures of load-bearing walls constructed of hollow building tile at Santa Barbara.

They give many specific instances, such as the Christian Science Sunday School, the Cottage Hospital, the Edward Lowe, Max Fleischmann and other residences, the Buick Garage, Nash Garage and County Hospital, where tile came through practically unscathed, and say that this fact is remarkable when it is considered that only a few buildings were constructed of load-bearing tile which would have passed the A. S. T. M. specifications, the remainder of the buildings being built of partition tile which is not designed or manufactured for load-bearing work.

The report is profusely illustrated and quite convincingly shows that where there were building failures, the fault was not of the tile but, in some cases, due to failure of the framework to meet the shock. The report points out that cement lime mortar is a necessity for good tile construction, and says: "With this knowledge it is highly important that the producers and distributors of tile do not call their work done when their materials are sold, but see to it that their materials are properly used and are bonded together with proper mortar."

And, here again, we see the awakening of an enlightened attitude on the part of all manufacturers that they "do not call their work done when their materials are sold" but regard it as a duty to see that those materials are properly used.

The conclusions drawn in the Hollow Building Tile Report, which is well worthy of a place in the files of any architect and which may be obtained from Mr. Dickey at 604 Mission Street, San Francisco, are as follows:

"When the history of the Santa Barbara disaster is finally written it will prove to be a history of poor construction, poor design, poor application of materials, and poor mortar. This is the consensus of opinion of all the prominent architects who have visited the scene, and it is also the opinion of the discerning public. No material completely withstood the shock, but of all the materials that were used, hollow tile probably gave the least financial loss.

"In discussing the matter with one prominent insurance engineer the statement was made that if steel frames had been used and curtain and partition walls had been made of hollow tile, instead of a disaster, the Santa Barbara earthquake would have been an interesting experience. Business would not have been interrupted, and while a few tile would have been shaken and dislodged they could easily have been replaced, and the losses would have been at a minimum. The writers of this report feel that this statement is largely true, but there would still have been an excess of damage because of poor workmanship and especially poor mortar."

* * *

TO CORRECT AN ERROR

Through one of those inadvertent typographical errors which will creep into any magazine occasionally, the words "Ramona Roof Tile" were substituted by the printer for the words "Architectural Terra Cotta" which should have formed the heading of the advertisement of N. Clark & Sons in our October issue. The advertisement, corrected, appears in the current issue.

* * *

BRICK OUTLOOK GOOD

There is now every indication that 1925 will be a banner year in the brick industry, marking not only a record amount of brick made and sold, but noteworthy also because of the remarkable development of the industry to better serve the public.

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Architects, now, more than ever before, recognize in Raymond Granite the greatest of building stones.

Raymond Granite is today almost automatically specified for the majority of fine building projects of the west.

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This Company specializes in the art of lighting. Its men are thoroughly grounded in the theory and practice of lighting design.

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JUDICIAL CONSTRUCTION OF ARCHITECT'S CONTRACT

[BY LESLIE CHILDS]



THE question of the amount of fees, and the manner of their payment, is usually so plainly stipulated in contracts involving architectural work that there is little room for after dispute in relation thereto. However, regardless of how carefully a contract of this kind may be drawn, conditions may thereafter arise in the subject matter of the contract that throw doubt upon how the different provisions of the agreement are to be construed.

As an illustration of how easily a situation of this kind may arise the Kentucky case of *Dittoe et al. vs. Morgan*, 268 S. W. 1065, is worthy of examination. The facts and circumstances which culminated in the action were, as taken from the report, in the main as follows:

In this case the defendant owned a building lot and desired to erect thereon a business house of the value of \$20,000. With this in mind he employed the plaintiffs, who were architects, to draw the plans and superintend the construction of the building. This contract was in writing and the portion of it that dealt with the compensation of the plaintiffs provided:

That the plaintiffs were to be paid a sum equal to 7 per cent of the total cost of the construction of the building; that upon completion of the working drawings and specifications 3 per cent was to be paid; that upon receipt of bids an additional 1½ per cent was to be paid; and that the remaining 2½ per cent was to be paid as the work progressed. The contract further provided:

"It is also agreed that, until a definite estimate is furnished the architects, charges shall be based upon the proposed cost of the work, * * * It is further agreed that in case the work is abandoned before completion, the architects shall be reimbursed for the amount of labor performed prior to such abandonment, in accordance with rates established by this contract."

The plaintiffs went to work under this contract, drew the plans and specifications, and upon their approval by the defendant advertised for bids. A number of bids were received but since they ranged from \$35,000 to \$65,000 they were rejected. The plaintiffs made an effort to have the bids scaled down, but the lowest bid they succeeded in getting was \$30,000. In view of this, since the defendant intended to put but \$20,000 into the building, the work was abandoned.

Now up to this time, it appears, the defendant paid the plaintiffs \$600 on account of their services as architects. Following the abandonment of the work the plaintiffs submitted a final bill in the sum of \$1,350, from which they intended the payment of \$600 to be deducted, which left a balance of \$750.

In arriving at this amount, the plaintiffs took the position that since they had prepared the plans and specifications, and submitted them to bidders, they were entitled to the first two installments of the contract, namely 3 per cent and 1½ per cent respectively. In accordance with this, then, the plaintiffs claimed 4½ per cent commission based on the amount of the lowest bid received, namely, \$30,000. This of course made their total compensation \$1,350 as claimed by them.

The defendant declined to pay this bill, and set up that the plaintiffs undertook to secure a bidder for the work at \$20,000; that since they failed in this he was not liable to them for anything, and that he had already paid them more than they were entitled to recover.

The plaintiffs thereupon brought the instant action to recover the amount they claimed as due under the con-

tract. Upon the trial of the cause in the lower court a judgment was rendered in favor of the defendant. From this the plaintiffs prosecuted an appeal to the higher court, and here in reviewing the record and stating the question before it the court, in part, said:

"As it is admitted that the plans and specifications as drawn were accepted as satisfactory, and were sent out and bids submitted thereon, and no objection at any time raised thereto, it is clear that the plaintiffs had taken the first two steps in their contract and were entitled to recover 4½ per cent commission therefor, as herein provided. A question arises, upon what amount shall this be based?"

Following the above statement of its conclusions as to the right of the plaintiffs to recover on a 4½ basis, and the raising of the question of what sum this was to be based upon, the court turned to the provisions of the contract. And here in reasoning on the question involved, the court, among other things, said:

"Accepting this as a basis, plaintiffs were entitled to recover 4½ per cent of \$20,000, or \$900, subject to a credit of \$600, and the court should have peremptorily instructed the jury to find a verdict in their favor for \$300. Wherefore judgment is reversed and the cause remanded for proceedings consistent with this opinion."

* * *

DESIGNING AGAINST EARTHQUAKES

[Continued from page 48]

thrown upon it in a manner not at all anticipated by the designer. But it may be hoped that the new structure to be built on this site will be adequately strong.

The Arlington Hotel presents a somewhat different illustration of the effect of a stress couple due to unfortunate design. The weakness was inherent in the design of the ground plan. The structure consists of three sections, namely two wings aligned north and south and a central section. Fig. 4. The blow which was struck from the north by the initial impulse drove the foundations south. The north wing swayed northward and recovering swung south. It struck the east end of the central building, which was also swaying. The times of swinging peculiar to each of the two structures, according to the distribution of weights, the relative dimensions, and the rigidity of either, were not the same. The slower pendulum, which in this case was the central section with the heavy water tank in the attic, was struck by the more rapidly swinging pendulum, the north wing. The blow was struck below the belt, so to speak, the center of gravity of the wing being below that of the central section. The latter therefore doubled over.

At the same time the western end of the central section was being battered by the south wing, though with less effect because in the absence of the water tank the periods of vibration of the two sections were less unequal. The central section was thus shattered at both ends and was also subjected to torsional stresses as the blows at opposite ends in opposite directions synchronized.

If this analysis, based upon an examination of the building and such evidence as there is regarding the nature and direction of the shock, be correct, the Arlington failed because the ground plan provided the forces with a destructive opportunity. Assuming that adequate reasons existed to compel the choice of that particular plan or of one similar to it, the architect might forefend against a similar disaster in either one of two ways. He might brace the several sections so rigidly and tie them together so firmly that they would swing as a unit; even so, however, the central section would be liable to severe torsional stresses.

[Concluded on page 53]

WHITCO Insures Longer Life to the Sash

The weak spot, and the place where sag is most likely to develop in a hinged sash, is at the joint between the stile and the rails, on the hinge side.



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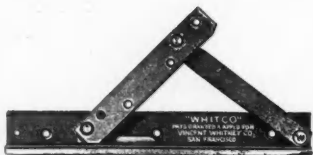
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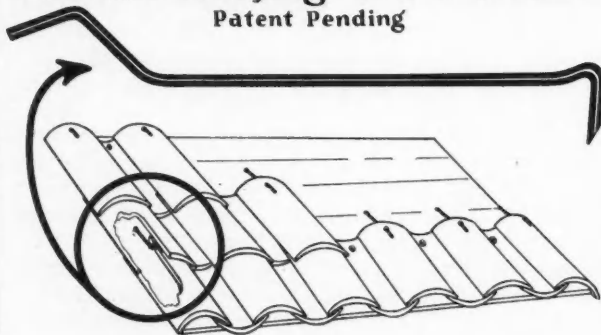
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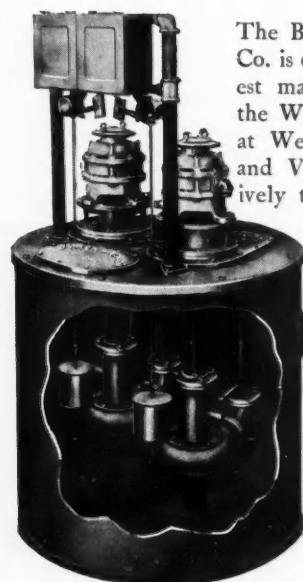


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DESIGNING AGAINST EARTHQUAKES

[Continued from page 51]

Or he might separate the sections, making each one a distinct, independent structural unit with a rectangular ground plan. Let each such unit be *ship-built*, firmly tied together and braced within itself; let the space between it and the next section be twenty or thirty inches; and let necessary walls or floor connections between sections be so constructed that they will not transmit shock from one section to the other and if crushed may be easily replaced. Light walls of metal lath and cement plaster and a bridge with sliding ends to connect floors would serve.

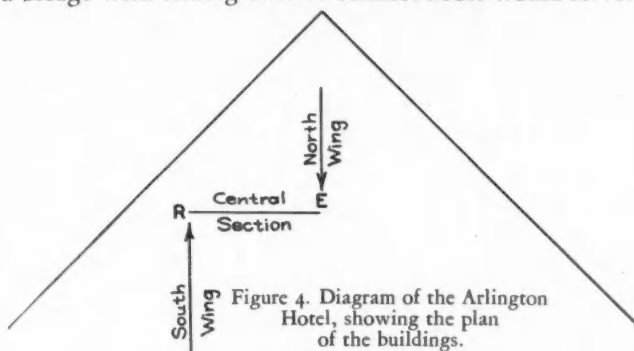


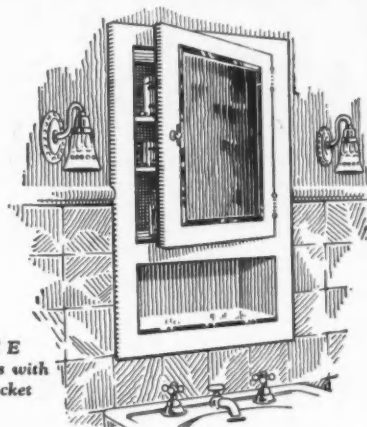
Figure 4. Diagram of the Arlington Hotel, showing the plan of the buildings.

This analysis of the effects observed in Santa Barbara considers the wave which radiates from the fault surface and is propagated out from it. It is known as the longitudinal wave and is a phase of the vibrations usually not considered the most dangerous. Greater destructive effects are attributed to the transverse vibrations, which occur in a direction at right angles to the ray of the longitudinal wave. The longitudinal wave, advancing at the rate of approximately three miles per second, strikes the blow that is often compared to the shock of a heavy truck. It heralds the advent of the terremoto and passes on.

The transverse vibrations then ensue, vibrating in any plane at right angles to the path of the ray and continuing for some seconds or minutes. They thus set up in every building a swaying motion like the movement of an inverted pendulum. Each building has its own period of swing depending upon the height of the center of gravity, the proportions of the dimensions in plan and elevation, and the elastic resistance or rigidity of the structure. The injurious effects are seen in the distortion of frames, the shearing of columns, the cracking and shaking down of walls. They are to be provided against by braces and ties. The longitudinal wave, on the other hand, is to be expected in a line at right angles to the fault plane and will produce a shear in the foundations accompanied by the development of a stress couple situated in a vertical plane and so oriented as to tend to throw the building toward the fault. Provision should be made against damage by this action, and to that end the architect should know in what direction to look for the nearest active earthquake fault.

In general it may be said that the major faults run parallel with the trends of the mountain ranges. But there are diagonal faults branching from the greater ones which, though of minor consequence geologically, may be sources of danger to buildings. The Mesa fault, to which a large part of the destruction accomplished in Santa Barbara may be attributed, is an example of this kind. The Fault Map of California, published by the Seismological Society of America, gives the principal known faults throughout the major part of the earthquake districts of the State, and reference may be made to it for general information. In cases of importance, as for instance in the location and design of a school building, the question of the locations of faults should receive special consideration, and the services of a competent geologist might well be employed to determine them.

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open pocket
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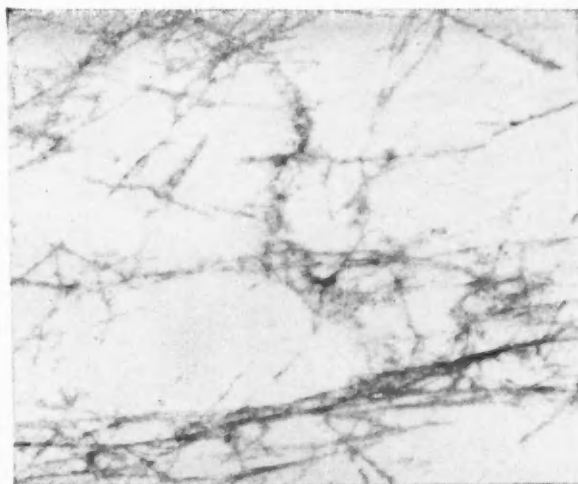
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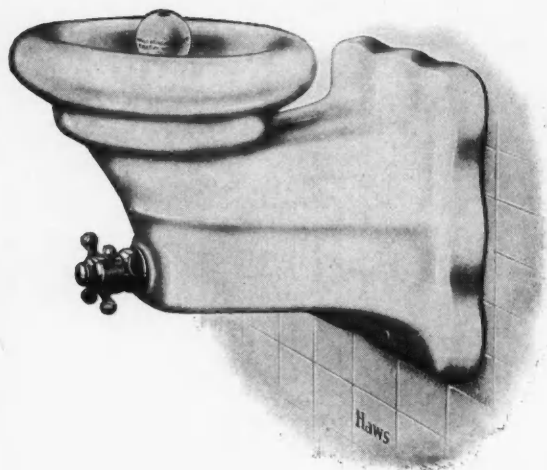


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